DOCUMENT RESUME

ED 105 118 CE 003 378

AUTHOR	Pargament, Richard
TITLE	The Coordination of Program Planning and Evaluation Systems for Occupational Education. Volume 1: The Implementation of the Reporting and Evaluation System for Occupational Education.
INSTITUTION	Riverside Research Inst., New York, N.Y.
SPONS AGENCY	New York State Education Dept., Albany. Office of Occupational and Continuing Education.
REPORT NO	F/242-5-00
PUB DATE	Jan 73
NOTE	100p.; For related documents, see CE 001 489 and CE 003 376-380
EDRS PRICE	MF-$0.76 HC-$4.43 PLUS POSTAGE
DESCRIPTORS	Academic Records; Computer Oriented Programs; *Computer Storage Devices; Information Processing; Information Storage; *Information Systems; Program Administration; Program Coordination; *Program Development; *Program Evaluation; Recordkeeping; Student Records; *Vocational Education
IDENTIFIERS	Reporting Evaluation System Occupational Education; RESOE

ABSTRACT

The report explains the major design concepts of the Reporting and Evaluation System for Occupational Education (RESOE) and provides a framework for the system's utilization by New York State's occupational directors and guidance personnel. Following an introduction the second section summarizes the functional specifications and general design concepts for RESOE which were determined during the first year of RESOE's development. An outline of the general strategy for implementing the system at regional and local education agencies throughout the State is followed by a detailed description of the way in which the general implementation strategy was carried out in two of New York State's occupational education planning regions. Section 5 describes a feasibility study and field test for the implementation of RESOE in New York City. The final section of the report discusses some of the requirements for the sustained implementation of RESOE in planning regions where initial implementation has already taken place, as well as in planning regions where RESOE has not yet been implemented. Emphasis is placed on local uses of the system for reporting and evaluation processes. (Author/JR)

ED105118

JAN 22 1975

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January 1973

THE COORDINATION OF PROGRAM PLANNING AND EVALUATION SYSTEMS FOR OCCUPATIONAL EDUCATION

VOLUME I: THE IMPLEMENTATION OF THE REPORTING AND EVALUATION SYSTEM FOR OCCUPATIONAL EDUCATION

Submitted to:

The State Education Department of New York
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F/242-5-00

CE003 318

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to this Volume

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Preface

During the past year, a Reporting and Evaluation System for Occupational Education (RESOE) has been further developed and implemented in two of New York State's occupational planning regions. Flexible computer-maintained student files have been established for each participating education agency. These files were subsequently utilized to generate mandated reports for the state and federal governments, and are available to meet other local, state and federal reporting and evaluation requirements in occupational education. The feasibility of applying RESOE in New York City's academic and vocational high schools was successfully demonstrated in a system field test. In addition, a layman's guide to RESOE was developed. This guide explains RESOE's major design concepts and provides a framework for system utilization by the state's occupational directors and guidance personnel.

More important than those tangible results is the manner in which RESOE has been received by occupational directors and their guidance personnel. They have not looked upon RESOE as simply another means of fulfilling State Education Department reporting requirements, but have generally appreciated the underlying system concepts described in this report. Some occupational educators have already sought to "get more mileage" out of the system to meet their own local or regional reporting,

evaluation and management information requirements. They have appreciated that the system is here now, and ready to respond to many of their needs.

Many occupational educators throughout New York State have graciously supported the efforts of the State Education Department's Office of Occupational Education and Riverside Research Institute (RRI) to develop and implement RESOE. Their commitment to RESOE's implementation in their respective education agencies resulted in an orderly implementation process. Their willingness to specify their management information requirements, and to provide constructive criticism, has enabled RRI to further elaborate RESOE so that the needs of education agencies can be served better.

It is not possible to mention all of the occupational administrators, teachers, and other personnel who have supported the implementation of RESOE. However, RRI wishes to acknowledge the substantial contributions of the occupational administrators and guidance coordinators who were designated in their education agencies to work directly with RRI personnel during the system implementation period.

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I. Introduction

The Vocational Education Amendments of 1968 set forth new national objectives for occupational education. Not only was occupational education to serve the industries which needed manpower; but, more significantly, it was to serve all students who needed to acquire vocational skills and knowledge. Subsequent to VEA 68, enrollments in occupational programs have steadily grown, and occupational studies now occupy a pivotal position in American education.

At the secondary and college levels, there is increasing recognition that students should supplement traditional academic subjects with the acquisition of vocational skills and knowledge that will sustain them in the world of work. Publicly supported occupational education has also rapidly expanded its services to adult members of the labor force, providing training, and retraining for new employment and advancement. Special student groups, such as the urban disadvantaged, the rural disadvantaged, and children of retarded mental development, are receiving career-oriented education, so that these groups may be more readily assimilated into the labor force. Finally, occupational education, to a greater extent than any other form of education, is expected to help in minimizing unemployment, and to provide

a sufficient labor supply for various sectors of New York State's economy.

In a recent policy statement, the New York State Regents have called for schools to instill greater career consciousness throughout the entire educational system and to offer more comprehensive occupational programs and services. Occupational education will be expected to play a key role in New York State to help to guarantee productive employment for all who are able and willing to work.

In order to develop a more comprehensive and coordinated system of occupational education which serves the needs of all students as well as the labor requirements of New York State's economy, an occupational education information system is needed. The Regents have said that " . . . state, regional, and local administrators will have access to standardized management information systems which provide all data needed to target, manage, and evaluate occupational education efforts; e.g., data concerning target groups, enrollments, program effectiveness, costs, and manpower needs. Such management information systems will ensure accountability and constant feedback for program redesign."*

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* Regents of the State University of the State of New York, Occupational Education: a Statement of Policy and Proposed Action. Albany: the State Education Department, May, 1971.

For the past two years, Riverside Research Institute (RRI) has been working with the State Education Department (SED) to develop and implement a system which will facilitate the development and maintenance of more comprehensive occupational services for students. This system is called The Reporting and Evaluation System for Occupational Education (RESOE). This volume of RRI's final report for 1972 describes RESOE, and the progress that has been made in its implementation.*

This volume is organized into six sections. The next section (Section II) summarizes the functional specifications and general design concepts for RESOE which were jointly determined by SED and RRI during the first year of RESOE's development. Section III describes the general strategy for implementing the system at regional and local education agencies throughout the state. Section IV describes how the general implementation strategy was carried out in two of New York State's occupational education planning regions. This section is relatively detailed, and may be bypassed by the reader who is more interested in system concepts than in the details of system operation. Section V describes a

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* This volume is submitted under contract #C-53226 between Riverside Research Institute and the New York State Education Department. This written report supplements a final oral report delivered by Riverside personnel at the State Education Department on December 19, 1972.

feasibility study and field test for the implementation of RESOE in New York City. This section consists of three parts: a detailed review and critique of New York City's current procedures for accomplishing some of the objectives met by RESOE; a plan for the implementation of RESOE in New York City; and a field test of certain parts of this implementation plan.

The final section of the report discusses some of the requirements for the sustained implementation of RESOE in planning regions where initial implementation has already taken place, as well as in planning regions where RESOE has not yet been implemented. The section stresses the local use of the system, and emphasizes the utilization of RESOE for local and regional reporting and evaluation processes which are not required by the State Education Department.

II. Background

During the initial year of system development (1971), RRI conferred with the State Education Department's Division of Occupational Education Planning and carried out a systems study of occupational education at the Nassau County Board of Cooperative Education Services (BOCES). This work led to a preliminary set of functional specifications for RESOE. Basic system design concepts were developed during the first year and partially tested at the Nassau BOCES. This section describes the functional specifications that were formulated for RESOE and describes the basic system design concepts that meet the specifications.

A. Functional Specifications

1. The system must be capable of supporting the evaluation of occupational education programs, and of providing feedback for program design and redesign.

a. Follow-up studies. The traditional method of evaluating occupational programs and courses is to determine what happens to occupational graduates. If the graduates hold jobs or have gained entry to advanced training programs in the occupational area for which they were trained, the occupational program from which they were graduated can be considered to be effective. Although many factors having

little to do with the knowledge and skills that a program imparts affect the job that occupational graduates might obtain, follow-up data, when interpreted with caution, can provide useful information concerning important program outcomes. Follow-up surveys are expensive and difficult to execute. Many local education agencies--particularly secondary schools--have had difficulty or have declined to become involved with the time-consuming processes of following up occupational graduates. Problems typically characterizing most survey research also plague those who attempt a follow-up study: validity of responses; rate of returned questionnaires; selectivity in who returns questionnaires; and so forth. Data analysis of follow-up results presents yet other difficulties.

Despite the problems of obtaining and processing follow-up data, occupational educators continue to include and expand the role of follow-up data in their planning and assessment of program outcomes. Moreover, many educators would like to execute long-term or longitudinal follow-up studies to determine what happens to graduates two or more years after program completion.

Because of the difficulties of executing follow-up studies and because of the sustained interest of the occupational education community in follow-up results, it

was decided that RESOE should be capable of executing both short-term and long-term follow-up surveys, and should also be capable of analyzing follow-up results.

b. Other forms of program evaluation. The system must be able to support the execution of course and program evaluations which are based upon course or program outcomes other than follow-up returns. Such outcomes include various measures of student mastery, as well as noncognitive factors.

2. The system must be able to support program monitoring and instructional support processes. In recent years, there has been growing interest in the development of behavioral objectives for occupational courses or course modules.* Once objectives have been established, teachers may determine whether students have mastered objectives by using criterion-referenced tests (such as skills check lists) to measure skill acquisition. When such information is obtained, summarized, and reported to teachers, to guidance personnel, and to the students themselves while the course is still in progress, the information may be used for flexible resource

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* For example, a behavioral objective for the figure clerking might be as follows: when given a bundle of 100 cash slips fastened by a rubber band, a rubber thumb, and a 10-key adding machine, the student is able to obtain a tape total from the adding machine. A second tape will then be run for verification. One tape will be [illegible] and attached to the bundle of sales slips. The entire operation is to be completed within five minutes (Huffman and Byers, 1971).

allocation, to help individualize instruction and to identify those students who require special assistance to master particular subject matter.*

This form of instructional support requires sophisticated computer software and data maintenance capabilities. Thus RESOE should be designed so that the computer requirements, such as computer test scoring procedures, computer generated reports of student mastery, various managerial reports, longitudinal data base maintenance, can be provided by the system. In this way local and regional education authorities wishing to implement objective-based instruction using instructional support processes can be assured of the requisite computer capability.

3. RESOE must be capable of providing support for student certification procedures. Students who master all of the vocational skills, key vocational skills, or perhaps simply a percentage of the skills taught in a given occupational course or program could receive a certificate of mastery. There are many points of view regarding student certification in occupational programs, and there is more than sufficient interest in certification to include the execution of certification processes as a functional specification for RESOE.

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* A variety of specific models already exist for carrying out this form of instructional support. One such model has been developed jointly by RRI and the Guilderland Central Schools.

Since many occupational programs extend over more than one year, a certification system would require a multi-year student data base. RESOE must therefore be able to maintain such a data base. As each student completes an occupational course or course module, RESOE must be capable of adding student mastery data to the data base.

The system must be capable of simultaneously and easily meeting different certification standards which may be required in different programs. In some programs, occupational educators might think it necessary for students to meet all program objectives. In other programs, some fraction of the total number of objectives might be considered sufficient for certification. In still other instances, it might be considered important for students to meet certain critical objectives plus a fraction of all other objectives.

Thus RESOE must be capable of incorporating a variety of certification criteria into certification algorithms, which would operate on student mastery data (e.g., criterion-referenced tests administered to students or skills check lists). The system must be capable of reporting to occupational authorities the names of students who met the certification criteria, and the names of those who did not. The system must also be capable of reporting additional information, such as the specific objectives not yet attained by students who did not qualify for certification.

4. RESOE must be capable of facilitating the work of guidance personnel. In addition to a variety of administrative support functions (such as retrieval of course results or individual records) RESOE must be capable of executing a variety of special studies and providing other forms of assistance in the guidance area. For example, the system should be able to support the execution of special studies to help establish empirical entry requirements for various occupational courses. The results of such studies may be used to counsel students, and to channel them into appropriate prevocational or other special programs when appropriate. Other examples include studies of student vocational interests and abilities, surveys of the labor requirements of regional employers, and analyses of which student groups have been served by particular courses and special services.

5. Program costing and cost-effectiveness analysis. Many occupational directors have indicated that program costing capability would help in program planning processes, budget preparation, and so forth. The costs which RESOE must eventually be able to process include teachers' compensation, other program-specific costs (such as equipment and supplies), and also program nonspecific costs (such as general administrative expenses, plant maintenance, and debt service).

Once program costs are available from the system, the system must be able to analyze the relationships between program costs and program effectiveness. The program outcomes which must be utilizable within the system for cost-effectiveness analysis include extent of student mastery of program-specific vocational skills, student follow-up data, and other quantifiable program outcomes.

6. RESOE must fulfill state and local reporting requirements. Occupational administrators, guidance counselors, and teachers are currently besieged with reporting requirements. These requirements emanate from the U. S. Office of Education, from the State Education Department, and from local and regional sources. Since the various reporting requirements are frequently uncoordinated, information collection processes tend to be redundant, i.e., much of the information needed for the multiple reports is collected more than once.

RESOE must be designed so that it can meet reporting requirements without requiring expensive or redundant efforts on the part of local administrators and their staffs. In addition to fulfilling federal and state reporting requirements, RESOE must also be able to provide summary statistical data for the purpose of answering questions raised by local groups such as labor unions, parent groups, school boards, and the various advisory bodies which help Boards of

Cooperative Educational Services and local education authorities to formulate policy for occupational education.

The system should also be able to provide summaries, statistical analyses, and other reports to facilitate the dissemination of information about occupational education. Such reports are needed for newsletters, public presentations, or for the development of an annual State of Occupational Education Report.

7. RESOE must be able to support the execution of various administrative processes. RESOE must be capable of performing a variety of administrative data processing functions. Administrative procedures which RESOE should be capable of supporting include test scoring, enrollment processing, scheduling, grade reporting and the generation of transcripts. The system should be capable of supporting such administrative processes because the data required for the execution of these processes is often the same data that are needed to meet the other functional specifications which have been defined for the system. By including some administrative processes within the system, it is possible to arrange administrative schedules so that data gathered once can be used for many different purposes.

B. General System Design Concepts

Figure 1 illustrates general design concepts for a system which will meet the functional specifications

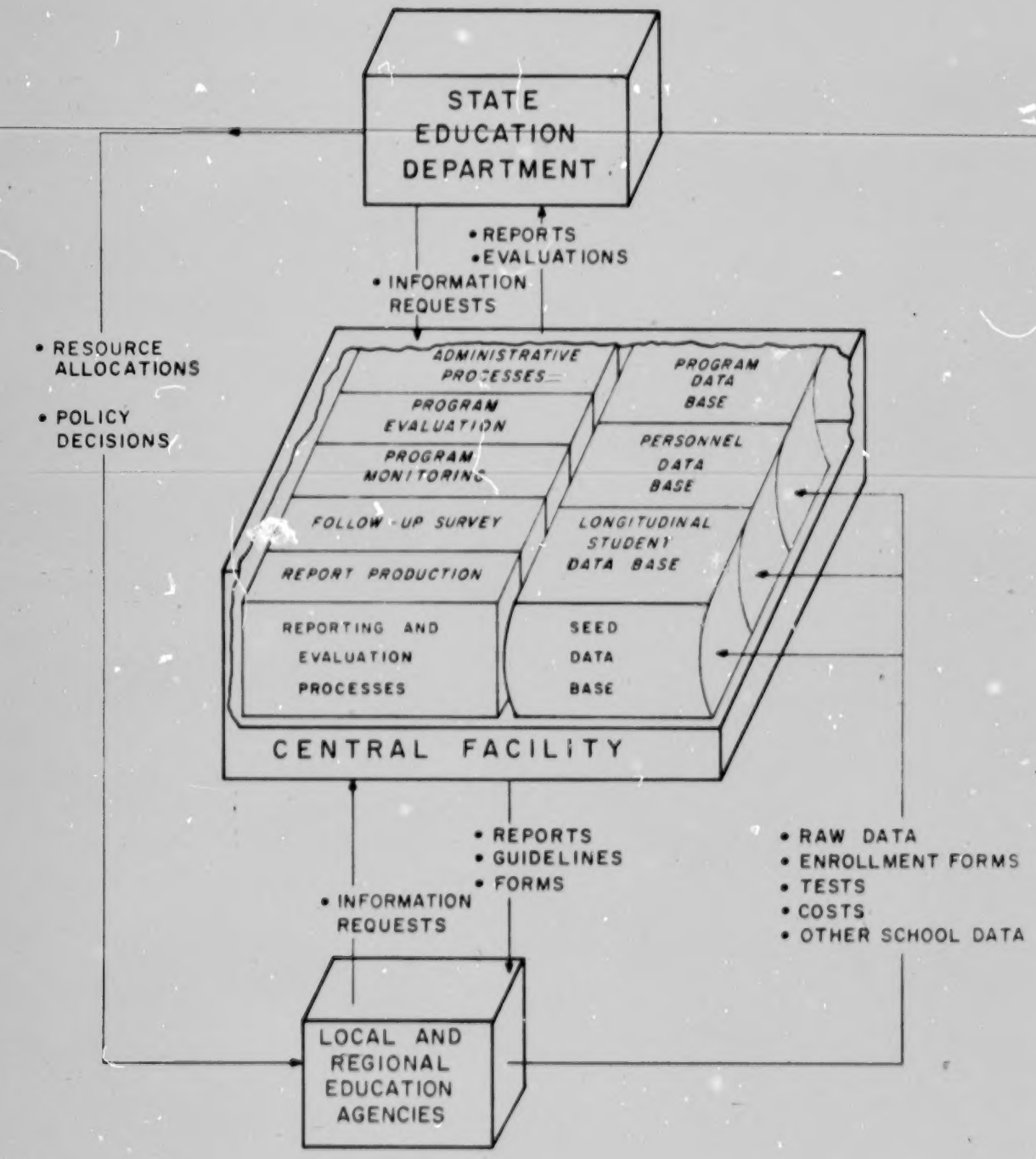

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FIG. I THE FLOW OF INFORMATION WITHIN THE REPORTING AND EVALUATION SYSTEM FOR OCCUPATIONAL EDUCATION

described in the previous section. The design concepts include a central facility which provides a variety of support to local and regional education agencies around the state. The central facility has the responsibility of fulfilling repetitive, standard reporting requirements emanating from federal, state and local sources, as well as the responsibility of coordinating and meeting the more individualized or nonstandard reporting and evaluation requirement emanating from these agencies. In order to meet both the standard as well as the nonstandard reporting and evaluation requirements of state, regional and local education agencies (not all of which are predictable in advance), RESOE requires a comprehensive computer data base maintained by a highly flexible software system. These design concepts are further elaborated in the following paragraphs.

1. A central facility. As indicated in Figure 1, a central data processing and control facility provides a variety of services to the State Education Department, as well as to regional and local education agencies throughout the state. There are a number of reasons for incorporating a central facility into the system design.

First, if data are centrally located, the central facility can easily serve the needs of a variety of education agencies without causing data collection problems. When SED

needs a summary report about some aspect of occupational education, it can obtain the report it requires from a single information source. A central facility can also provide quality service to local and regional education agencies that are not geographically close to the central facility. There are many examples in the computer field of centralized service being supplied cost-effectively to remote locations.

Second, by centralizing the information facility, economies of scale are obtained. It is possible to amass sufficient work from local, regional and state education agencies so that the hardware, software and personnel required to do the job properly are efficiently utilized, and consequently the costs for participating education agencies are attractively low.

2. Design concepts for the generation of basic reports and analyses. A basic report or analysis is one which is needed repeatedly at regular time intervals. For example, the State Education Department annually requires statewide information on occupational enrollments and completions.

The central facility has the responsibility of establishing guidelines and procedures for meeting the State Education Department's repetitive information requests with respect to occupational education. Data collection forms, instruction booklets and other necessary materials are provided by the central facility to regional and local

education agencies. The procedures established by the central facility are not inflexible, but make ample allowance for the differences among agencies to which services are provided. Local and regional education agencies provide the necessary raw data to the central facility so that the State Education Department's repetitive and most of its nonrepetitive requests can be easily and cheaply met. The central facility establishes a core data base associated with each local and regional education agency that is providing occupational education. The core data base is then used to meet reporting requirements.

3. Design concepts for fulfilling nonrepetitive requests for reports and evaluations. Nonrepetitive requests from the State Education Department and from regional and local education agencies are also met by the central facility. The central facility fulfills nonrepetitive requests by using the core data base if it contained the needed data. When additional raw data are needed, it can be provided by the local or regional education agencies, and added to those agencies' core data files. These supplemental data are held by the central facility either permanently or temporarily, depending upon the needs and desires of the education agency making the requests.

4. Management of the central facility's data base by SEED. A frequent obstruction in the development and

implementation of management information systems is the substantial cost associated with developing and testing computer software. When a system cannot be completely specified at the outset, but must evolve over time, software development costs can be devastating. Software developed on an ad hoc basis to fulfill initial specifications often has to be rewritten many times as the system specifications change and expand with system use.

The management information system needed by occupational education must be capable of accommodating changes in specific system processes as occupational education undergoes further growth and development, and as the educational norms for operationalizing concepts such as accountability and evaluation in education change. If the Reporting and Evaluation System for Occupational Education (RESOE) is to fulfill its purposes, it must be able to easily assimilate these changes without major revisions in computer software. Flexible software must be used which will not require major modification as system requirements change and expand. However, such software will be less efficient than software specifically written to fulfill a particular purpose (i.e., more computer time will be required). Highly efficient software is appropriate when specific system specifications are likely to remain stable for many years, and only a minimal number of nonrepetitive system applications

are to be carried out. For RESOE, the costs saved by applying efficient software at any point in time would be offset several times over by the need for continual software redevelopment. Therefore, a critical design concept of RESOE is its utilization of highly flexible software that would not require continual redevelopment. (A method is available to integrate flexible with production software for repetitive operations: See footnote p. 20.)

A software system called SEED (System for the Evaluation of Educational Data) meets RESOE's requirements.* SEED is a flexible software system designed for the maintenance and analysis of educational data. SEED is capable of maintaining the core and supplementary data that RESOE will require for its operations. SEED includes a full computer file storage and maintenance capability. Flexible data entry and checking, the merging of new information into pre-established files, and the capacity to handle missing data are among SEED's data maintenance attributes.

SEED is capable of summarizing and reporting the data it maintains in virtually any manner. Reports generated

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* SEED is a software package developed by Riverside Research Institute, and by Mr. Roald Buhler of Princeton University. During the first year of RRI's work for the Office of Occupational Education, SEED was found to meet many of the software requirements of RESOE. Therefore, RRI assigned SEED to the State Education Department for utilization in educational applications.

by SEED may be in the form of frequency distributions, cross-tabulations, graphs of various types, measures of central tendency (mean, median, mode), or simply lists of data base entries (e.g., students or personnel) selected on the basis of some attribute or combination of attributes included in the data base (e.g., educational background, ethnicity, enrollment in a given program, eligibility for special services, age).

Since data in SEED-generated reports are labeled by SEED in accordance with the directions of the educational agency requesting the report, the reports are readily intelligible to their recipients.

In addition to SEED's capacity to meet reporting requirements, SEED's analytic and data summarization capabilities are more than sufficient for the fulfillment of RESOE's other functional specifications. SEED is capable of processing and summarizing follow-up data. Furthermore, grades, test results, attitude data, measures of student mastery and other types of data relevant to the evaluation and monitoring of occupational programs can be maintained and processed by SEED.

SEED may also be used by RESOE to maintain a student certification system for occupational education. SEED is able to maintain the quantitative student mastery data on which certification would be based, and would also be able to

execute the various certification algorithms developed for various occupational programs, courses, and course modules.

For purposes of special studies, program evaluation, and so on, SEED includes a full complement of descriptive and inferential statistical capability. These include analysis of variance and covariance, t-tests (for correlated and independent samples), various correlations (biserial, Pearson product moment, tetrachoric), multiple regression analysis (standard and stepwise), multiple discriminant analysis, factor analysis, and many contingency table analyses (including chi-square analysis and analysis of uncertainty), and other measures of association.

SEED is open-ended. The central facility or other user may attach subprograms, either permanently or temporarily, to SEED, so that processes which could not be executed by the standard SEED package may still be carried out.* Thus if a request comes to the central facility that SEED cannot fulfill, it is possible to meet that request without removing data from the SEED-maintained data base.

Finally, SEED can be used by persons without any previous training in computer science. It has an English language control system. Thus it would be possible for occupational educators to have direct access to their own data base over inexpensive remote terminals.

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* Production software for highly repetitive operations may also be attached.

5. Summary. This section has presented some of the major design concepts of RESOE: The concept of a centralized facility operating under SED auspices; the concept of establishing a core data base for processing repetitive requests from the State Education Department and other education agencies; concepts for processing nonrepetitive requests; and the computer software concepts for data maintenance and processing. The next sections describe how the design concepts have been operationalized. Specific procedures are described for the implementation of RESOE in several regions of New York State.

III. General Strategy for the Implementation of RESOE in New York State

This section describes the general approach to the implementation of RESOE, which has been developed with and approved by the State Education Department's Office of Occupational Education. A more detailed discussion follows in the succeeding section of how the implementation strategy was applied during this past year in three occupational planning regions in New York State.

Implementation of RESOE occurs in two logically distinct but overlapping stages. In the first stage, the core or basic system which is needed to fulfill repetitive basic reporting requirements is established. The repetitive reporting requirements which have been emphasized are those emanating from the U. S. Office of Education and the New York State Education Department. Local and regional education agencies have often had difficulty providing valid data to fulfill these requirements in the past.

The second stage of implementation involves the utilization of RESOE by local, regional, and state education agencies for nonrepetitive report requests, and for locally or regionally based processes such as program evaluation, costing, monitoring and instructional support. In practice, the two stages frequently overlap, although they are logically distinct.

The following paragraphs describe the implementation strategy for Stage I. Stage II implementation is far more flexible and largely dependent upon the particular functions for which various education agencies decide to obtain RESOE support.

Figure 2 is a flow diagram which illustrates the sequence of major steps in the implementation of Stage I. The process begins with the collection of student enrollments, some personnel data,* and some information about program offerings. The student enrollment data minimally include the following information on all students enrolled in occupational courses: Social Security number, demographics, type of student, grade level, birth date, and codes for the occupational courses in which the students are enrolled. Student name, address and some other information (e.g., purpose for taking the course) are also collected at certain sites. (The specific procedures for collecting these enrollment data are reviewed in sections IV and V of this report.)

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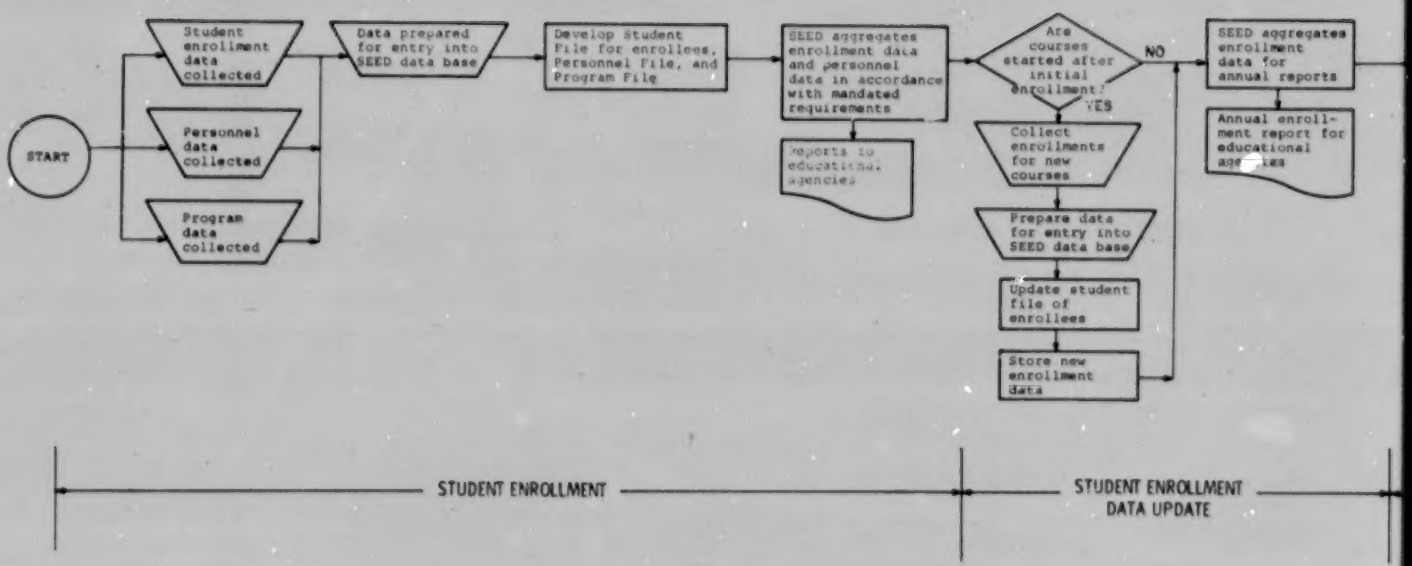
* The personnel data collected in phase I are only those data which are needed to fulfill repetitive reporting requirements, and which are not in the State Education Department's Basic Educational Data System (BEDS). No attempt is made in Stage I implementation to develop and maintain a comprehensive personnel file.


START
Student enrollment data collected
Personnel data collected
Program data collected
Data prepared for entry into SEED data base
Develop Student File for enrollees, Personnel File, and Program File
SEED aggregates enrollment data and personnel data in accordance with mandated requirements
Reports to educational agencies
Are courses started after initial enrollment?
NO
YES
Collect enrollments for new courses
Prepare data for entry into SEED data base
Update student file of enrollees
Store new enrollment data
SEED aggregates enrollment data for annual reports
Annual enrollment report for educational agencies
STUDENT ENROLLMENT
STUDENT ENROLLMENT DATA UPDATE

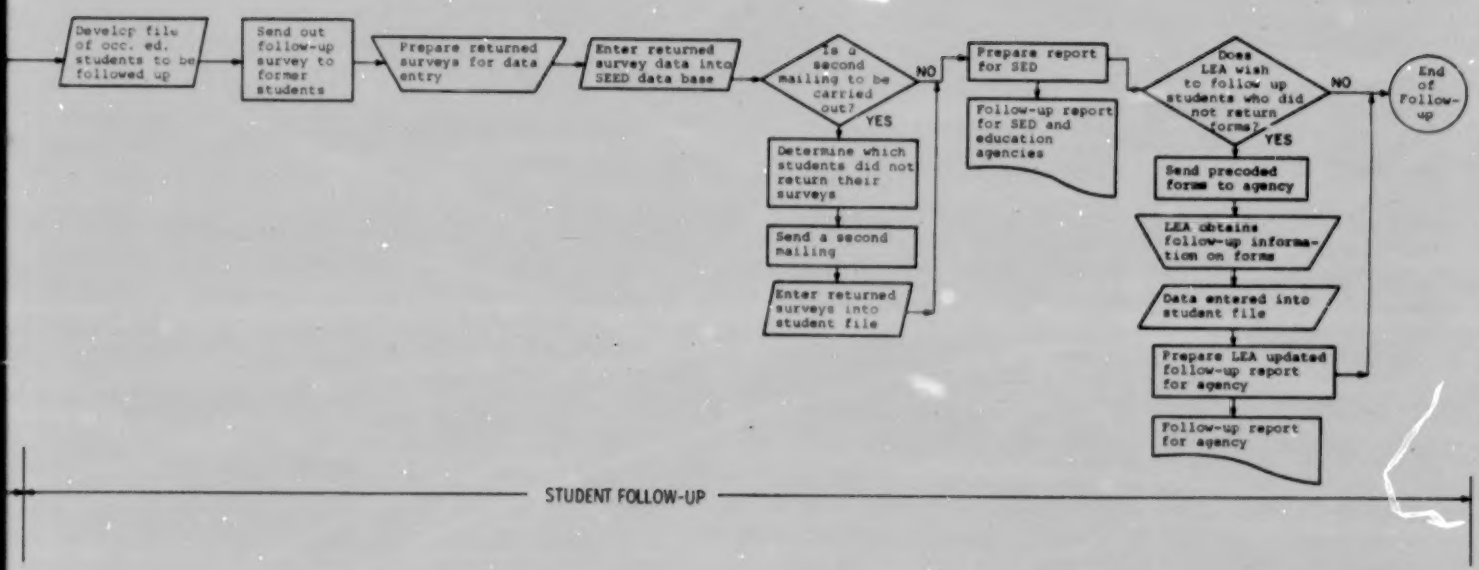


Fig. 2. Flow diagram illustrating the sequence of steps in the first implementation stage of the Reporting and Evaluation System

The enrollment data are sent to the central facility where they are prepared for entry into the SEED-maintained data base. The enrollment data are then placed in a core student file which is created for each participating local education agency. In late October, the SEED-maintained student enrollment files are temporarily closed, and SEED is used to aggregate the student enrollment and personnel data in accordance with the reporting requirements mandated under the Vocational Education Act of 1963 and the Vocational Education Amendments of 1968.* The required enrollment and personnel reports are then sent by the central facility to the State Education Department. Copies of these reports are also prepared for participating regional and local education agencies.

Many education agencies have courses which begin after the initial enrollment data are collected. This situation is particularly characteristic of adult occupational courses, which tend to begin at several points during the academic

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* A report of follow-up studies of the previous year's graduates is also required at this time of year. Since the previous year's graduates are not in the SEED-maintained data base in the first year of RESOE implementation, it is not possible for RESOE to fully execute the required follow-up study. However, RESOE is used to ease the burden on local and regional education agencies; follow-up data are obtained from the education agencies, aggregated and reported to the State Education Department in accordance with state-prescribed formats.

year, or are repeated several times between September and June. Enrollment data are collected and forwarded by the education agencies throughout the year. These additional enrollment data are prepared for entry into the data base and are then added to the basic student files that were initially constituted in the fall. In the spring, the student files are used to provide enrollment data which the education agencies need for their annual report to the State Education Department.*

In mid-April, a list is developed of occupational education graduates and drop outs who are to be followed up. (The particular procedures for developing this list are reviewed in section III of this report.) Most student information is already in the basic student enrollment file. A follow-up student file is created by RESOE, with much of the information in the follow-up file taken from the pre-established enrollment file.

During the following fall, the follow-up file is used to execute a follow-up survey.** (Details of the follow-up survey

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* RESOE does not file the annual report on behalf of the education agencies, because RESOE does not have the information at this stage of implementation to complete many of the annual report sections.

** At about the same time, the student enrollment data are once again being placed into student files by the central facility, the new enrollment data are being compared with the previous enrollment data, and a longitudinal or long-term student data base is created by SEED. This process is repeated every year.

questionnaire and procedures are discussed in later sections of this report.) As the follow-up surveys are returned by the graduates, they are prepared for computer entry, and then entered into pre-established follow-up files.

If a second survey questionnaire is to be sent to those students who did not respond to the first questionnaire, SEED checks the follow-up files to identify those students who did not return their first questionnaire. A second questionnaire may then be sent.* The surveys returned from the second questionnaire are prepared for entry, and entered into the SEED-maintained follow-up file.

One week before the State Education Department's final deadline for the follow-up report, the follow-up file is temporarily closed and the central facility applies SEED

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* The number of returns obtained from second follow-up mailings are usually not sufficient to justify the costs of conducting a second mailing. However, some education agencies require nearly complete data and will plan to personally follow-up (through phone calls and field trips) as many graduates as possible. A second mailing may sometimes help to reduce the burden associated with the personal follow-up. SEED's analytic capacity may be used to determine whether a second mailing or personal follow-up is warranted. If the sample of students who returned their questionnaire approximates, in important respects, the population of students who are being followed up, then the follow-up survey may be concluded, and SEED's inferential statistics may be used to draw conclusions about the population of graduates from the sample of graduates who responded.

to the aggregation of follow-up data and to the generation of the SED-prescribed follow-up report. Graduates who have not returned their surveys before the files are closed for aggregation are counted as "status unknown" on the status report. Participating local and regional education agencies receive copies of this report. After the follow-up report is submitted to SED, the follow-up file is reopened for the entry of any additional questionnaires which may have been returned.

Some of the participating local or regional education agencies may wish to personally follow-up (through telephone calls or site visits) those graduates who did not return their questionnaires. These education agencies are provided with a precoded form for each student who has not provided follow-up data. This form is filled out by the agency's own staff when the student is contacted. When the agency believes that it has a sufficient number of returns for its purposes, the agency sends the follow-up forms to the central facility where they are prepared and entered into the pre-established follow-up file.* The follow-up file is then used to conduct

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* This follow-up procedure involves two data aggregations. The first aggregation occurs in time to meet the State Education Department report deadline. This deadline is determined by the U. S. Office of Education reporting schedules. The second aggregation occurs after the education agency decides that it has completed its follow-up study. While this procedure requires two data aggregations, it avoids the burden of conducting two relatively independent follow-up studies: one to meet mandated reporting requirements, and the other for local purposes.

any analyses on follow-up data that are requested by the education agency. The student follow-up file is permanently maintained by the central facility in the event that education agencies wish to carry out follow-up surveys for graduates who have been in the labor force for two or more years.

The enrollment process coupled with the follow-up process serves to meet a variety of reporting requirements as well as to establish SEED-maintained basic student files which can be used without modification for a variety of purposes. These files can be supplemented with additional information so that still other processes may be carried out. The specific procedures for establishing the basic student files in various regions of the state are described in the following section.

IV. Stage I of RESOE Implementation in Planning Regions 9 and 1

A. Implementation Sites

During this past year, RRI implemented RESOE in two planning regions selected by the State Education Department's Office of Occupational Education. The selected planning regions were planning regions 9 and 1.* The implementation sites in planning region 9 were:

- The city of Syracuse;
- the Onondaga County BOCES and its member school districts;
- the Oswego County BOCES and its member school districts;
- the Cortland-Madison Counties BOCES and its member school districts;
- the Cayuga County BOCES and its member school districts; and
- the Tompkins-Seneca-Tioga Counties BOCES and its member school districts.

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* These planning regions are referred to in RRI's quarterly progress letters as planning regions 12 and 2 respectively, which were their previous numeric designations. Former planning region 12 is geographically identical to planning region 9. Former planning region 2 included only Nassau County, whereas planning region 1 includes both Nassau and Suffolk counties.

The implementation sites in planning region 1 were:

- The Nassau County BOCES;* and
- the Nassau County Vocational Education Extension Board (VEEB).

The specific procedures for implementing RESOE in these planning regions are described in the following paragraphs.

B. Procedures for the Establishment of the Basic Student Enrollment File

As indicated in Figure 2, the objective of collecting student enrollment information is the establishment of basic student files for each participating education agency. These files serve to fulfill mandated reporting requirements and a variety of other purposes. The procedures under which a SEED-maintained basic student file was established may be logically separated into three parts: the dissemination of information and materials to the participating education agencies; the collection of the student data; and the data processing required to enter the student data to establish the files and to generate enrollment reports.

1. The dissemination of materials and information. RRI worked directly with an occupational coordinator at each of

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* The system was partially implemented in Nassau County school districts for the purpose of meeting State Education Department reporting requirements, but a permanent SEED-maintained data base was not established for the districts' occupational students.

the six BOCES included in the RESOE implementation. These coordinators were either BOCES occupational directors or individuals designated by them. RRI also worked directly with the occupational director at the City of Syracuse School System. With the exception of the Syracuse school system,* the BOCES coordinators were responsible for coordinating the implementation of RESOE at the BOCES occupational centers, and also at BOCES' member school districts providing their own occupational programs.

In planning region 9, a number of meetings took place between RRI and the regional coordinators in which the concepts and procedures of RESOE were explained. Three of the five BOCES coordinators in region 9 accepted RRI's offer to make a joint presentation to school district principals and guidance personnel concerning RESOE implementation in local school districts. Similar meetings were also held with the Nassau county coordinator and with the principal of one of Nassau's central high school districts.

In late August and early September, sufficient quantities of materials were sent to the coordinators for

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* RRI worked directly with the Syracuse School System, because Syracuse is one of the big-six cities of New York State and is not connected with a regional BOCES. All other school districts in the two planning regions are associated with a BOCES.

data collection purposes. These materials are contained in Appendix 2 and are briefly described below.

a. Student Survey Procedures for the Occupational Education Data System. This is a booklet which describes the general procedures to be followed in obtaining the information required for the basic student file. It contains some needed definitions (such as the definition of an occupational course) and instructions for how to provide information about occupational courses on a form designed for this purpose.

b. Program Classifications for Occupational Education. This booklet contains standard program codes for occupational education. These codes are to be entered on occupational course forms (described below).

c. Occupational Course Forms. These forms were used by administrators in occupational area centers and school districts to provide information on occupational courses. One form was to be used for each course. The form was provided as a pressure sensitive label, so that it could be placed on the outside of an envelope which would subsequently contain student enrollment data for the course. The following essential information is obtained from this form:

- Code for the educational agency which is providing the course
- Federal occupational education program code for the course

- Indication of whether the course is new or continued
- Level of course: high school, college or adult
- Type of course: regular, cooperative, or occupational special education
- Name of teacher giving the course
- Room number in which the course is given
- Course title

d. Student Course Enrollment Form. Instructions for Classroom Administrators. This booklet contains classroom instructions for the completion of student course enrollment forms. The booklet also contains guidelines for identifying handicapped and disadvantaged students, and for providing this information on each student's form. The booklet also suggests data checking procedures.

e. Student Course Enrollment Form. This form is filled out by each student for every occupational course in which he is enrolled. The form requests information for the basic student file as well as other information needed by occupational administrators for enrollment and registration processing. The following information is requested of the student:

- Name
- Address
- Telephone number

- Date of birth
- Course code (provided by administrator)
- Social Security number
- Military status (veteran or nonveteran)
- Demographic information (race and sex)
- Information about cooperative work experience jobs
- Grade level (for high school students)
- College students indicate whether they are full time or part-time, first year students, or beyond the first year of study, and in or not in a degree program
- Adult students indicate their main reason for taking the course: preparation for new job; job advancement; part of an apprenticeship program; or for avocational reasons

In addition to the above, the form also has room for coded information concerning type of student (regular, disadvantaged or handicapped), and whether or not the student's parents are migratory agricultural workers.

f. Additional materials. Other materials were also sent to the coordinators for use in the collection of enrollment data. These materials (contained in appendix 2) included:

- Lists of numeric location codes for local and regional education agencies
- Prototype of a principal's letter of explanation (to be used for data collection in school districts)
- A letter of introduction from Dr. Robert Seckendorf, Assistant Commissioner for Occupational Education, State Education Department
- A supply of large brown envelopes
- Some additional forms for providing data on teachers in occupational adult education, and on paraprofessionals in secondary education (see appendix B)

2. Collection of the student enrollment data. The objectives of the collection process are: a) to obtain a completed enrollment form for each student in each course; and b) to obtain pertinent information about the courses in which the students are enrolled. In operational terms, this means that for each course, the central facility required an envelope with an occupational course form affixed to the outside and completed student course enrollment forms on the inside.

Figure 3 illustrates the alternative procedures (developed by RRI and the coordinators) which were employed for collecting the student enrollment data. After orientation

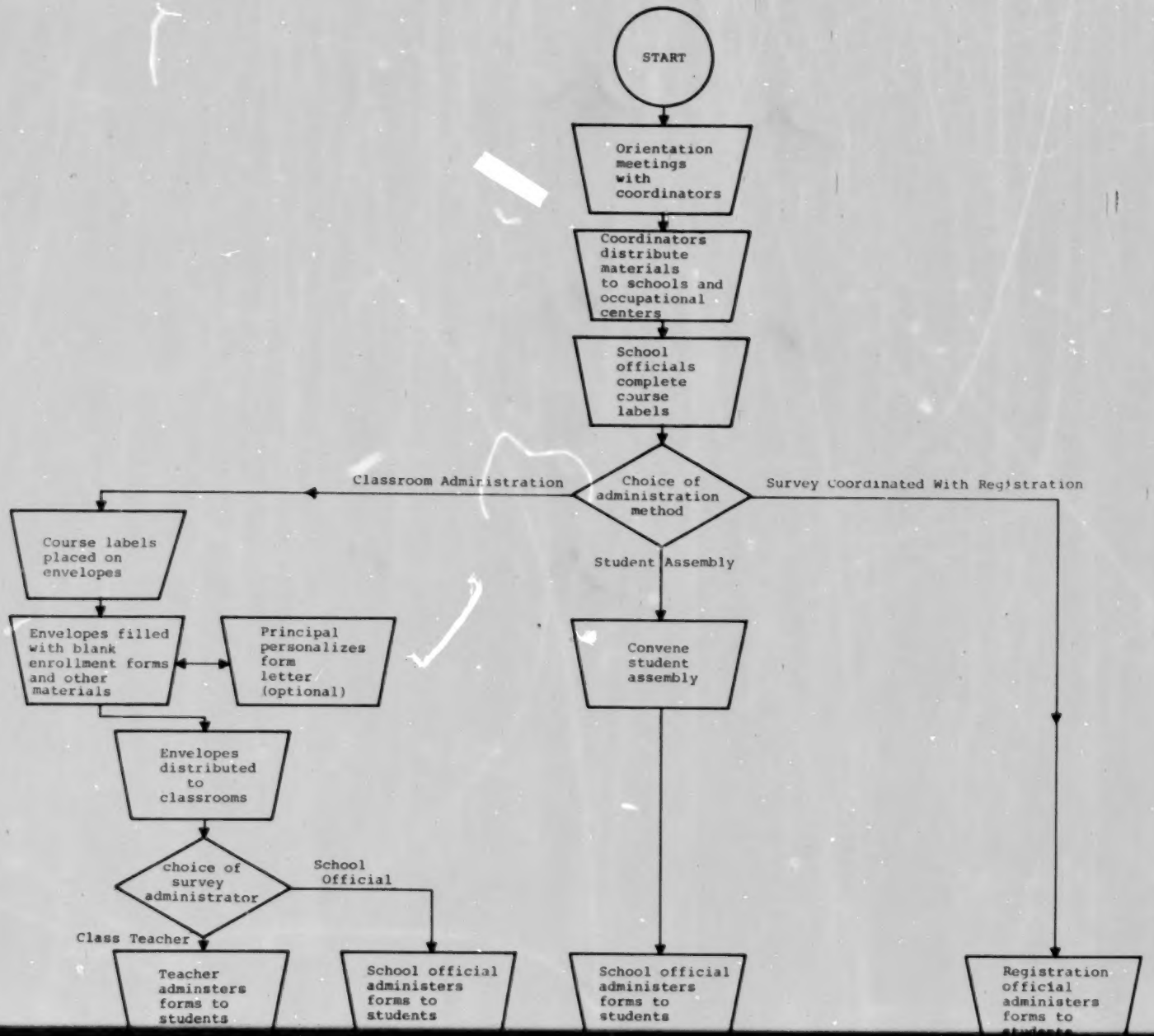
START
Orientation meetings with coordinators
Coordinators distribute materials to schools and occupational centers
School officials complete course labels
Choice of administration method
Classroom Administration
Survey Coordinated With Registration
Student Assembly
Course labels placed on envelopes
Envelopes filled with blank enrollment forms and other materials
Principal personalizes form letter (optional)
Envelopes distributed to classrooms
choice of survey administrator
School Official
Class Teacher
Teacher adminsters forms to students
School official administers forms to students
Convene student assembly
School official administers forms to students
Registration official administers forms to

Fig. 3. Flow diagram of RESOE's student enrollment procedures.

meetings were held, and materials were sent to coordinators, occupational administrators in each participating school and BOCES occupational area center prepared a list of occupational courses offered in their education agency. They then completed an occupational course form (i.e., they put requested course information on a pressure sensitive label), using the instructions provided in Student Survey Procedures for the Occupational Education Data System.

The method by which the enrollment forms were administered to occupational students was chosen by the local school administrators. Three different methods were tried in 1972, differing in the manner in which personnel and student resources were allocated to the enrollment survey. All were successful in collecting the required data.

a. The classroom administrator method was the most widely applied procedure throughout both planning regions. The first step in this method was the labelling and filling of the course envelopes. Each prepared envelope contained a sufficient number of student course enrollment forms and a copy of Instructions for Classroom Administrators. At certain locations, the envelopes also contained a letter from the local principal or area center supervisor explaining the reasons for the survey.

The envelopes were delivered to the local classrooms. The label on the envelope (course form) facilitated delivery by providing the address of the classroom, local course title, and teacher's name. The envelopes were distributed to most courses during the first week in October. (For courses not in session in October, the materials were distributed shortly after the course began.)

Under the classroom administration method, completion of the student enrollment forms was supervised by the classroom teacher assigned to the course, or by a school official who collected the enrollment data from all occupational courses. In most instances, the classroom teacher was selected. (In adult classes it was not uncommon for a school official to visit the classrooms and administer the enrollment forms.)

The administrators' manual inside the envelope contained administration directions, and instructions to be read to students. Ten to fifteen minutes of class time were consumed in this method. The administrators' instructions also contain directions for checking the data entered by students, for identifying and coding student type (regular student, disadvantaged student, handicapped student) on each student's enrollment form, and for returning the completed material to an administrator designated to receive them.

b. The student assembly method of collecting the

student enrollment data was applied at the Cortland-Madison BOCES. In this method, occupational students meet in the same room so that all students in all courses can complete enrollment forms simultaneously in a single administration session. A school official administers the forms just as in the classroom administration method. The students are requested to enter on their forms the Office of Education Program Code number for their occupational course. They obtain this code number from a list of courses and corresponding numbers which is posted on a blackboard.

After the students have completed the forms, the school official checks them and enters student type (regular, disadvantaged, handicapped). The completed student enrollment forms are then sorted into groups according to occupational program code. Each group of forms is placed in an envelope, and a course label is prepared and attached to the envelope. At this point, the enrollment data from the student assembly method and the classroom administrator method are in the same form.

c. The coordination of the RESOE enrollment survey with traditional registration. Perhaps the least time consumptive procedure for obtaining RESOE enrollment information is to coordinate the enrollment survey with course registration. This method was successfully used at the Cayuga BOCES. Occupational students completed the RESOE Student Course

Enrollment Form at the time that they registered for BOCES courses and also whenever they changed courses. As in the other administrative methods, the student's classification (regular, disadvantaged or handicapped) was added after the student completed his part of the form. As in the assembly method, the forms were eventually sorted into course groups. Each group was placed in an envelope and labeled with a course form.

The coordination of registration and the RESOE enrollment survey saves student and personnel time because much of the information required for the student file must be obtained at registration time for local administrative processes. If the Course Enrollment Forms are completed at registration time, it is possible to use the information on the forms for a variety of local administrative purposes before the forms are grouped by courses, and sent to the central facility. For example, the Cayuga BOCES used the completed student course enrollment forms as source documents for the production of class rosters to be used in the Cayuga attendance system. The forms were also placed in student files, where they served as a convenient and easily updated source of student information.

3. Data processing required for the establishment of the student file. The coordinators sent the enrollment envelopes to RRI, (which served as the central facility)

where they were checked in, and keypunched. A SEED-maintained student file was then established and enrollment report summaries (see Figure 3) were produced.*

4. Keeping the enrollment files current. Throughout the school year, enrollment information was obtained for courses which were begun after the initial enrollment data were sent to the central facility. The procedures for collecting this supplementary enrollment information are similar to those used in the initial enrollment collection process.

C. Updating the Student File

In the late spring, RESOE's student files are changed as needed and some new information is added. With respect to changes, virtually any of the data in the basic student file that are found to be incorrect may be changed, including new surnames for recently married female students.

The student file also can be updated at this time with address and telephone changes for those students who are to be followed up in the annual follow-up survey. Students to be followed up include those who have previously taken or are

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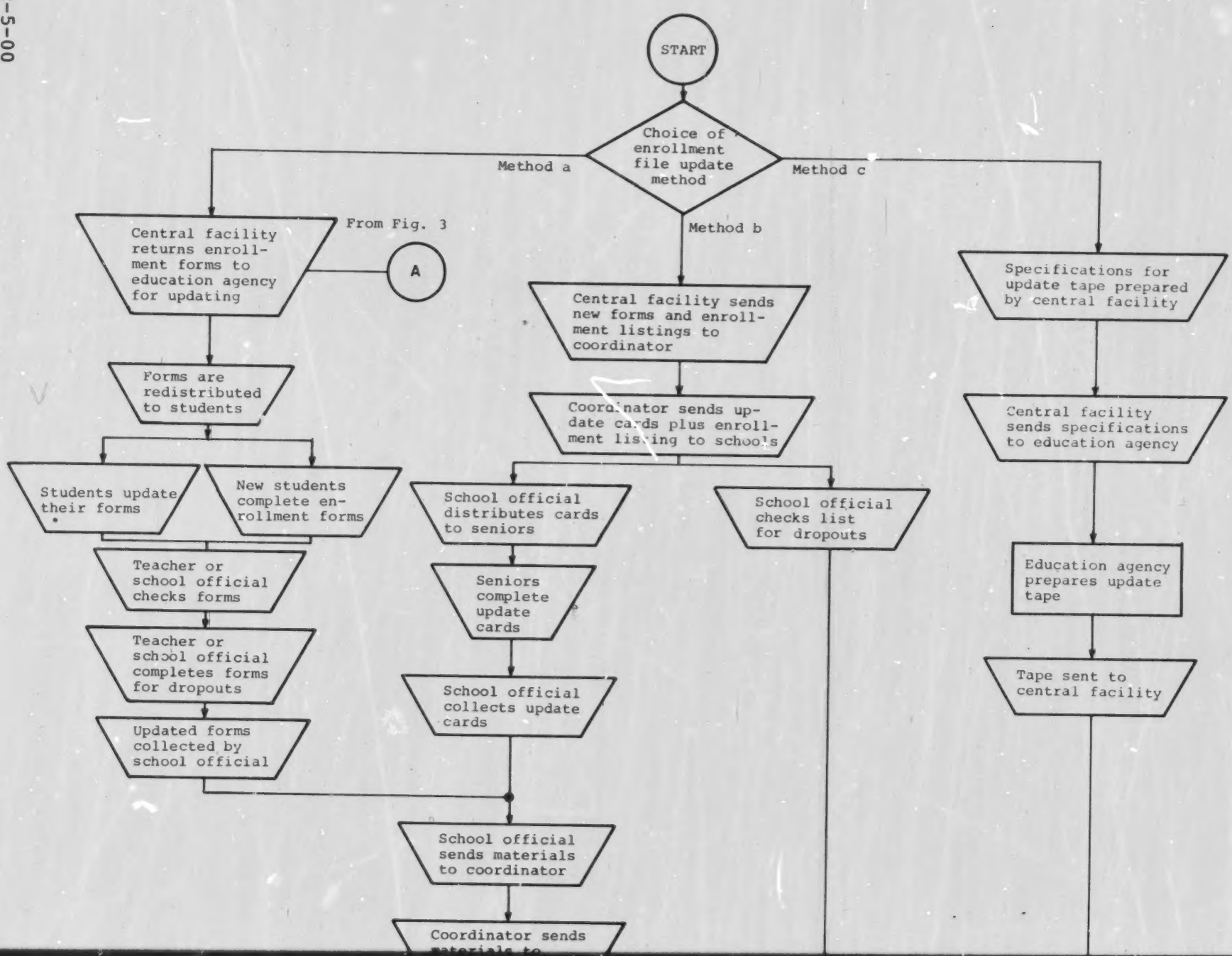
* On behalf of the education agencies participating in RESOE implementation, RRI also received forms containing personnel information and forms (OEP-2) containing follow-up results of the previous year's graduates. The data on these forms were keypunched. SEED was used to aggregate the personnel and follow-up data, and to provide the required follow-up and personnel reports to the State Education Department.

currently enrolled in an occupational program and are graduating from high school at the end of the current semester, those who have dropped out during the academic year, adult students who have completed their occupational preparation for a new job, and, in some instances, students who are transferring to another educational agency.

The RESOE spring student file update processes are illustrated in Figure 4 (which continues the RESOE flow chart begun in Figure 3). As in the enrollment procedure, procedural particulars vary with the type of educational setting, the preferences of the occupational directors, local resources, and local capabilities. Three alternative update options are illustrated in Figure 3, and are briefly described in the following paragraphs.

1. Updating the Course Enrollment Forms (method a). In this method, the original enrollment forms are returned to the local or regional education agency for redistribution. The redistribution of these forms to students follows the same procedure that was selected by the education agency for the initial distribution. Blank forms are distributed to students who were not previously included in the enrollment survey. The students update their forms by filling out a "Student Course Completion" section (see appendix 2). This section asks the student to indicate any changes in the information (address, telephone number, etc.) provided earlier in the school year.


START
Choice of enrollment file update method
Method a
Method b
Method c
From Fig. 3
A
Central facility returns enrollment forms to education agency for updating
Forms are redistributed to students
Students update their forms
New students complete enrollment forms
Teacher or school official checks forms
Teacher or school official completes forms for dropouts
Updated forms collected by school official
Central facility sends new forms and enrollment listings to coordinator
Coordinator sends update cards plus enrollment listing to schools
School official distributes cards to seniors
Seniors complete update cards
School official collects update cards
School official checks list for dropouts
School official sends materials to coordinator
Coordinator sends
Specifications for update tape prepared by central facility
Central facility sends specifications to education agency
Education agency prepares update tape
Tape sent to central facility

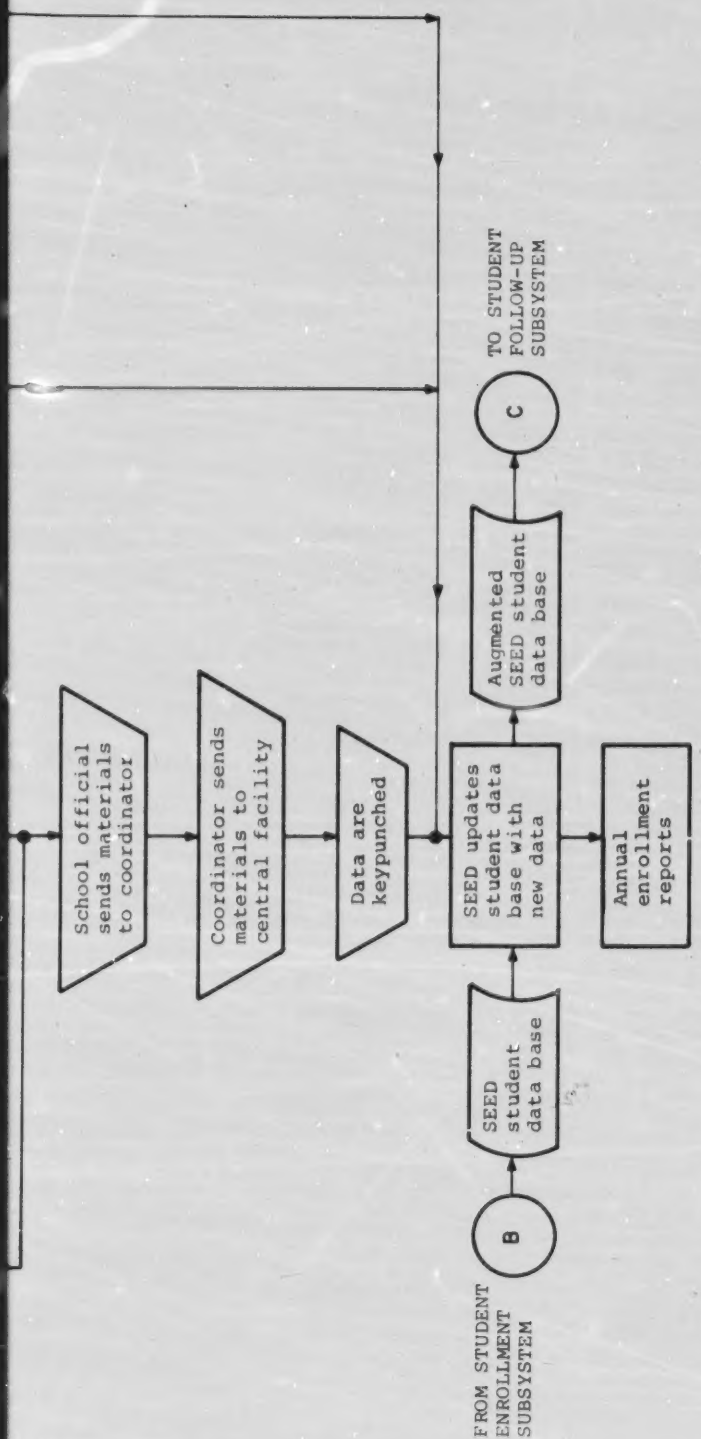


Fig. 4. Flow diagram of alternative ways of conducting the RESOE enrollment update. This flow diagram is a continuation of the enrollment flow diagram in Fig. 3

The local education agency identifies in the "Student Course Completion" sections, any students who have dropped out. The forms are then returned to the central facility for processing.

2. Updating files for graduates and dropouts (method b). Under this option, the regional coordinator sends blank information cards and a SEED-generated list of all enrolled students to school districts and other agencies where occupational education is offered. The cards are distributed to graduating students who complete them with the following information: name, address, phone number, date of birth, sex, and Social Security number. After the cards are completed, they are returned to the regional coordinator. The names of student drop outs are circled on the enrollment list, and this list is also returned to the coordinator. The coordinator sends all materials to the central facility.

3. Method of coordination with a local automated record system (method c). A third option for the RESOE spring student file update is for local and regional education agencies to provide, from an automated record system, a computer tape or punched cards with the necessary information. The tape or cards would include current addresses for graduating students who took occupational courses and a unique student identifier, such as Social Security number, that was already included in the RESOE enrollment file.

The spring update serves a variety of purposes.

First, it enables the central facility to maintain up-to-date information. Second, it provides a vehicle for occupational educators to add additional end-of-year information such as students' grades, or placement data to the data base. Finally, it serves to identify the students to be followed up in the subsequent follow-up survey.

D. The Follow-up Survey

The follow-up survey of occupational education students is conducted annually by RESOE. Execution of the survey begins in early September, and continues through October and November. This section of the report describes the follow-up procedures which are scheduled for implementation in planning regions 1 and 9 in 1973.

1. Who is to be surveyed in the follow-up survey.

In order to fulfill state reporting requirements, the following groups must be included in the follow-up survey:

- Recently graduated secondary students who have taken occupational courses
- Secondary students who have dropped out of school during the previous academic year, and who have completed an occupational program, or were enrolled in an occupational program at the time they dropped out
- Adult students who were enrolled in occupational courses to prepare for new jobs
- Postsecondary graduates

At the option of regional and local administrators, additional student groups may also be included in the follow-up survey. For example, in planning regions 1 and 9, many education agencies will include secondary occupational graduates of previous years, because follow-up data from graduates who have been in the labor force for a year or two is a more valid indicator of program effectiveness than the follow-up results of more recently graduated students. Other groups which local or regional education agencies might select for inclusion in the RESOE follow-up survey are adults who took occupational education to supplement their skills and knowledge for a job they already have, and adults who participate in occupational courses for avocational purposes.

2. The basic follow-up questionnaire. The basic follow-up survey instrument consists of four basic questions which are indicated below.

a. If you are continuing your education, please darken in (■) the box (☐) or boxes to indicate where you are currently enrolled.

☐ Daytime high school

☐ Board of Cooperative Education Services (BOCES)

☐ Adult Continuing Education

☐ Private Occupational School

☐ On-the-job training where you work

☐ Apprentice program where you work

☐ Occupational major at two-year college

☐ Liberal arts major at two-year college

☐ Other major at two-year college

☐ Four-year college

☐ Other (please write in) _____

b. Are you employed at this time?

☐ Yes, employed full time

Name of Employer: _____

Job Title: _____

☐ Yes, employed part-time

Name of Employer: _____

Job Title: _____

☐ No, but looking for a job

(Please contact our Placement Office if you would like help in finding a job)

☐ No, and not looking for a job at this time

c. What is your gross weekly income?

$_____

d. At your job, do you make use of the skills and information that you learned in your occupational courses?

☐ The skills and information are very important in my job

☐ The skills and information are not as important now as when I started my job

☐ The skills and information are not very important in my job

☐ The courses only covered half of what I really need to know

☐ I do not need the courses I had for the job that I have now

e. Are you on active duty in the Armed Services?

☐ Yes

☐ No

The first question provides information about students who are continuing their education. The second question permits the student to indicate whether he has a job. The employer's name and job title are included so that placement counselors may know where former students are employed and thus where future students may find employment. The inclusion of the student's specific job title also serves another purpose. A numeric code from the Dictionary of Occupational Titles (DOT) may be assigned by the central facility or local education agency to each student's job. It would then be possible to determine quantitatively the extent of relatedness between the entry-level skills required for a student's job and the entry-level skills required for the cluster of jobs for which

the student was trained in occupational education.*

The third question asks students to indicate gross compensation for their work. The fourth question solicits the students' opinions of the relevance of their occupational education to their jobs, and the fifth question is included to determine military status.

Questions one, two, four and five are needed to fulfill mandated reporting requirements. Question three has been included because it nearly always appears in some form on the follow-up surveys of local and regional education agencies. Answers to this question permit determination of the benefits side of program costs-benefits ratios and also serves as a partial validation check on the job title provided by the student in answer to question two.

3. The additional or optional follow-up questionnaire. Many of the local and regional occupational education agencies in planning regions 1 and 9 have been carrying out their own follow-up studies in the past, and have used follow-up results to assess various aspects of their occupational programs.

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* The Coordination of Program Planning and Evaluation Systems For Occupational Education, Volume II: A Targeting System for Occupational Education describes procedures for quantifying the degree of relationship between students' jobs and their occupational training.

For example, one agency is engaged in longitudinal follow-up studies which include occupational graduates as well as "control" students who were not enrolled in occupational courses.

Thus, certain local and regional educational agencies have formulated specific questions which they would like to ask their graduates in the yearly follow-up survey. Many other agencies have identified various occupational programs and services about which they would like some feedback from their former students.

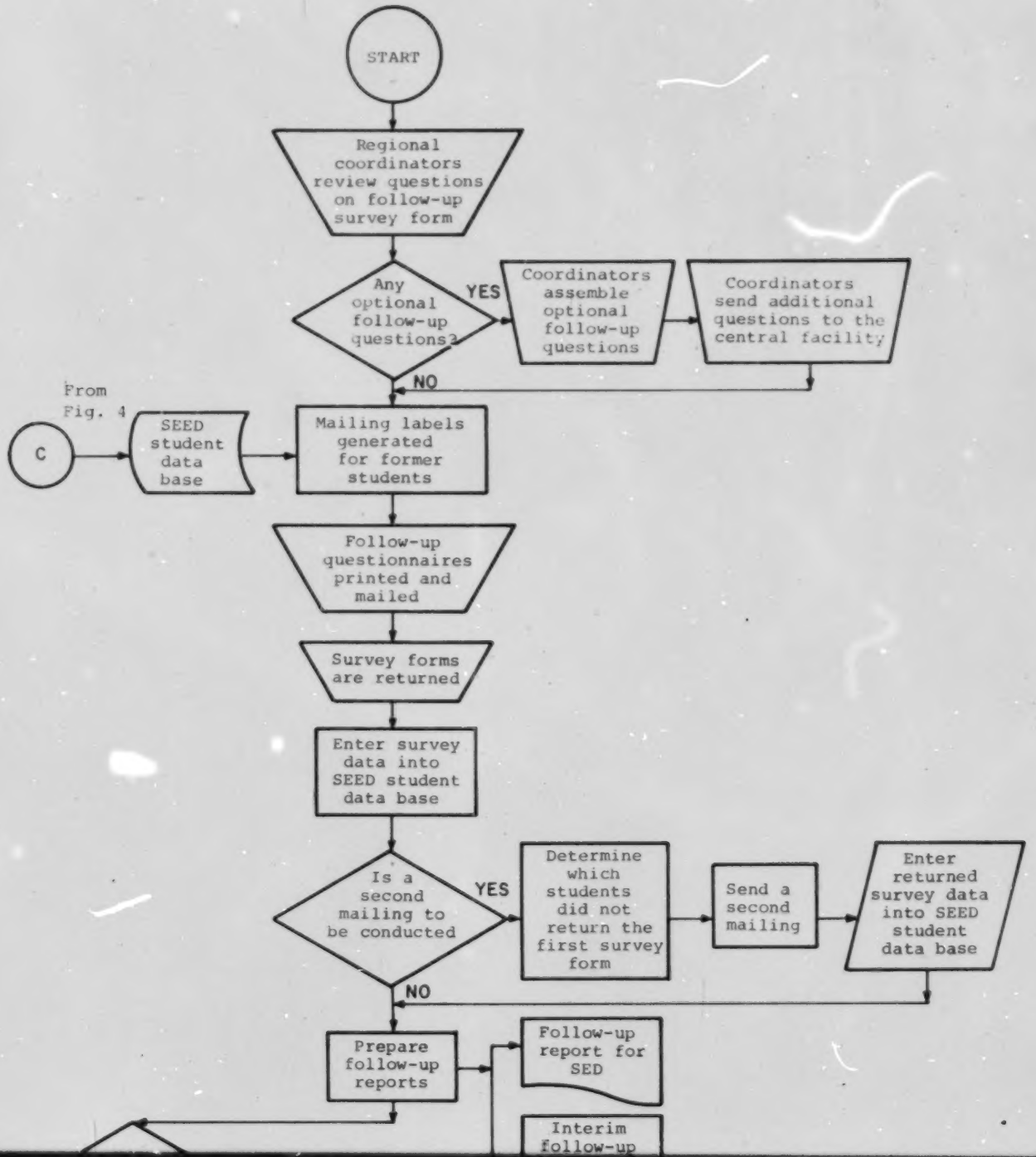
Follow-up survey instruments generated by local and regional occupational agencies frequently include questions which allow the agencies to assess the effectiveness of their guidance and placement services. Questions concerning job satisfaction and job mobility are also included. In addition, students are often asked to assess the relevance of various components of their previous occupational and regular education to their role in the world of work.

RESOE meets the individual follow-up requirements of local and regional education agencies by adding each agency's follow-up questions to the basic follow-up questionnaire. It is thus possible for RESOE to simultaneously meet mandated reporting requirements and fulfill the needs of individual education agencies without causing duplicated work efforts. The procedures for conducting the follow-up survey are discussed in the following section.

4. RESOE procedures for conducting the follow-up survey. RESOE's procedures for conducting the follow-up survey are illustrated in Figure 5. The figure contains a flow diagram which continues from the spring update illustrated in Figure 4, and ends with the preparation of final follow-up reports to participating local education agencies.

As indicated previously, one of the purposes of the spring update procedure is to determine which students are to be surveyed in the next follow-up study. This information is obtained through one of the alternative updating procedures described earlier in this report (see Figure 4). The central facility then uses SEED to create a follow-up student file for each local and regional education agency participating in RESOE. The minimal information contained in this file is the data provided on each student at enrollment time as well as the student's updated address, telephone number, etc. The file is used to generate several mailing labels for each student to be followed up. The mailing labels include the student's name and address as well as a unique numeric temporary identifier (not Social Security number) which enables SEED to merge the student's returned follow-up questionnaire data into the follow-up file.

During the spring, the central facility works with the BOCES coordinators to formulate and gather questions for


START
Regional coordinators review questions on follow-up survey form
Any optional follow-up questions?
YES
Coordinators assemble optional follow-up questions
Coordinators send additional questions to the central facility
NO
From Fig. 4
C
SEED student data base
Mailing labels generated for former students
Follow-up questionnaires printed and mailed
Survey forms are returned
Enter survey data into SEED student data base
Is a second mailing to be conducted
YES
Determine which students did not return the first survey form
Send a second mailing
Enter returned survey data into SEED student data base
NO
Prepare follow-up reports
Follow-up report for SED
Interim follow-up

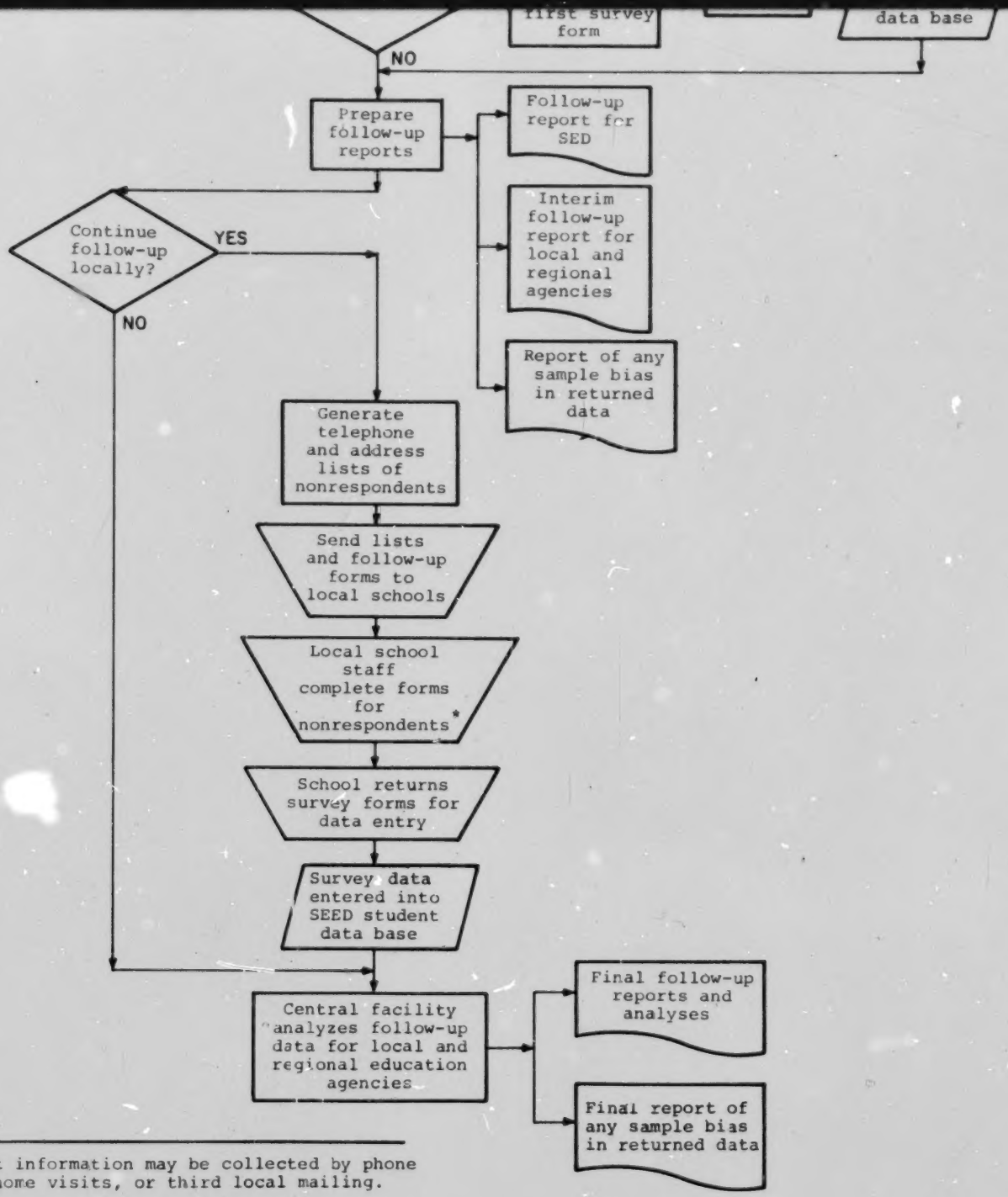


Fig. 5. Flow diagram of RESOE follow-up procedures

* Nonrespondent information may be collected by phone interviews, home visits, or third local mailing.

the optional follow-up survey.* These questions are then organized by the central facility for coordination with the basic follow-up questionnaire.

In mid-August, the follow-up questionnaires are sent out by the central facility. A label is attached to each student's questionnaire. This label appears through an open window envelope so that it serves as a mailing address for the Postal Service. A postage-paid business reply envelope is included for the student to return his completed questionnaire.

As the questionnaires are returned to the central facility, they are entered into the SEED-maintained follow-up files that were created during the previous spring. In October, SEED is used to determine which students have not yet returned their questionnaire, and to generate some statistics on the rate of return and sample bias in the returned data.

The central facility and the regional coordinators then decide whether a second centralized mailing should be sent to students who did not return their questionnaires. If a

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* After a few years of RESOE operation, it will be possible to establish a bank of optional follow-up questions which would be referenced by categories such as job satisfaction, guidance activity, placement activity, assessment of training relevance, job mobility and so forth. The bank would also contain relevant empirical data (from prior utilization) on the efficacy of the questions, and data which may be used by education agencies to compare their follow-up results to "norms" based upon the data obtained from other regions.

second mailing is carried out, it would probably contain just the basic questionnaire.* The results of the second questionnaire are also entered into the central facilities data base as they are returned.

At a determined cut-off date, the file is temporarily closed and SEED is used by the central facility to fulfill the mandated follow-up reporting requirements for the State Education Department. Students who have not responded are listed as "status unknown" on the state report. At the same time, the central facility also uses SEED to generate a report of the extent to which the group of students who returned follow-up data constitute an unbiased sample of the entire population of students who were included in the follow-up study.

The return rate and sample bias report are then used by each education agency to decide whether it wishes to allocate the resources required to "personally" follow up those students who have not responded through the mail. If the local or regional education agency does not wish to expend personnel and other resources in this manner, the agency submits a request to the central facility for any additional final reports or inferential statistical analyses it would like to have carried out on the data from the basic and optional follow-up

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* Second mailings rarely increase the rate of follow-up more than five to ten percent and are thus usually not worth executing. Second mailings would only be justifiable under relatively unusual conditions when there was sufficient reason to project a meaningful return rate.

questionnaires. Any essay-type optional questions which were inserted by local agencies are returned to them for review and local coding operations.

If the agency wishes to follow up students who have not returned their follow-up forms, the central facility provides lists of these students, along with forms and guidelines for collecting follow-up information. The local education agency then completes a follow-up form on each student for whom data are available within the agency.* The agency may collect additional follow-up data by visits (to parents, employers, etc.) or through a telephone survey. The forms are returned to the central facility and the follow-up data are added to the SEED-maintained follow-up data base. Final follow-up reports and analyses are then produced by the central facility at the agency's request. A final report of any sample bias that still remains in the data is also produced.

The timing of the "personal" follow-up by the local education agency and the generation of the agency's final follow-up reports is dependent upon the amount of time that the agency wishes to expend on the follow-up project and when they are able to expend it. However, it is assumed that most agencies will complete their work no later than March of the following year.

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* The occupational status of some students may be known to the placement office or teaching personnel.

5. Increasing the rate of return in the follow-up survey. There are several ways of reducing the work efforts and costs associated with the execution of the RESOE follow-up study.* RESOE's procedures may be made more efficient and cost-effective by reducing the need for second mailings and personalized follow-up canvassing by local and regional education agencies. This objective can be realized by implementing practices that will result in an increased rate of return for the initial central follow-up mailing.

A practice which may help to increase the return rate is to inform students of the importance of the survey. As part of the spring update procedure, students may be told about the follow-up survey and asked to complete and return their questionnaire immediately after they receive it in the fall.

Another means of increasing the rate of return to the initial follow-up mailing is by offering the services of the education agency's placement office to former students who are looking for a job or are not satisfied with the job that they have.** This offer of job placement motivates the

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* An efficient approach to the collection and analysis of certain types of follow-up data exists within the Targeting System for Occupational Education, developed by Riverside Research Institute. See The Coordination of Program Planning and Evaluation Systems for Occupational Education, Volume II: A Targeting System for Occupational Education, 1972.

** This technique has been successfully used by the Nassau BOCES.

student because there is a personal reason for him to complete the form, i.e., he is not just helping to plan for future generations of occupational graduates. Moreover, many occupational education agencies would like their former students to make use of their placement services, and the follow-up instrument can thus serve as a reminder to students of the availability of job placement support.

Still another means of increasing the rate of return to the initial follow-up mailing is by carrying out a sweepstakes as part of the survey process. All former students who returned completed follow-up forms to the central facility would be eligible to win a prize.*

E. Summary

Section III has discussed the strategy and procedures for the implementation of the basic or core reporting and evaluation system in planning regions 1 and 9. The implementation strategy developed and tested for these planning regions should work equally well throughout all of New York State including the big-six cities which are not included in the

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* Preliminary discussions with respect to the concepts, justifications and organization of an occupational education follow-up sweepstakes have been held with occupational directors or guidance personnel at most BOCES in planning regions 1 and 9. Considerable enthusiasm has been expressed. However, before a sweepstakes could be implemented the ramifications of this approach will have to be examined by RRI and the State Education Department Division of Occupational Education Planning.

BOCES network. However, because problems of size could cause some unique difficulties for RESOE in the state's larger cities--particularly in New York City--RRI carried out a systems study and field test to determine the feasibility of implementing RESOE in New York City. This effort is described in the following section of this report.

V. Implementation of RESOE in New York City

A. Overview

During the past year, RRI carried out a number of related tasks to determine the feasibility of implementing RESOE in New York City. RRI's tasks included: a) assessment of current procedures used in New York City for meeting mandated reporting requirements and for carrying out other processes which RESOE supports; b) determination of whether RESOE could provide the city with increased capability for executing reporting and evaluation functions in occupational education; c) modification of some of RESOE's procedures so that the particular requirements of New York City can be met; and d) implementation of a limited RESOE field test.

The RESOE feasibility study began with a series of meetings at the Board of Education. RESOE was explained to board staff members who are responsible for the administration of occupational education and educational data processing. These meetings culminated in a presentation of RESOE concepts and capabilities to Chancellor Scribner on June 12, 1972. The Chancellor expressed considerable interest, and therefore authorized the continuation of work efforts with the proviso that RESOE be implemented in New York City in a manner which did not contradict current policies and practices concerning

the confidentiality of potentially sensitive student data, and redundant utilization of teacher time for meeting reporting requirements. Through the coordinated efforts between RRI and board staff members, the particulars of RESOE implementation were agreed upon and a field test was executed.

This section of the report describes the three major components of RRI's work efforts in New York City: a review of current practices; a proposal made to the board for RESOE implementation; and the New York City RESOE field test.

B. A Brief Review of New York City's Procedures for Meeting Mandated Reporting Requirements in Occupational Education

Board of Education procedures for fulfilling mandated reporting requirements were emphasized in RRI's review, since the fulfillment of these requirements is the key function carried out by RESOE during the initial stage of implementation.

1. Enrollment reports. The procedures for meeting the mandated reporting requirements in the academic high schools differ from the procedures employed in the vocational high schools. In the academic high schools, a student survey is carried out which is not totally unlike the RESOE enrollment survey described earlier in these pages. Each student completes a single "Occupational Enrollment Record" card with the following critical information:

- School
- Official class
- Name
- Name of last attended elementary or junior high school
- Indication of registration in courses for the physically handicapped
- Indication of participation in cooperative education
- Indication of planned occupational major in the high school in which the student is currently taking courses

The students also help to determine their own student type (regular or disadvantaged). A list of elementary and intermediate schools not eligible for assistance under Title I of the Elementary and Secondary Education Act is read by the teacher. If a student has attended one of these schools, he is instructed to record that fact on the "Occupational Enrollment Record" card. Students from these schools are considered to be regular, the other students are defined as being disadvantaged.

The teacher collects the cards, circles a code letter to indicate student ethnicity, and then removes a perforated tab on the card which contains the student's name. Removal of the tab serves to protect the anonymity of each

student's data. The cards are then sent to the board for data processing.

At the vocational high schools, no student survey is conducted. Instead, the central administration is requested to report on forms provided by the State Education Department (OEP-1), an unduplicated count of the number of students in each occupational education program. The number of students in each program is to be partitioned by grade, race and student type (disadvantaged, handicapped, regular). The definition of disadvantagement is based upon socio-economic criteria such as eligibility for free lunch program, student's address in an obviously poor neighborhood, etc. The completed forms are sent to a central location where they are aggregated over schools, so that a single form per program is produced.

2. Follow-up reports. New York City's follow-up survey is handled similarly for graduates from the academic and vocational high schools. In the spring, students who have taken occupational courses fill in their mailing address on a double post card with the following information:

- School from which students expect to graduate
- Major occupational or vocational course
- Indication of whether students ever had a cooperative or work-study job

- Sex
- Name of school attended before high school

The rest of the questions concern employment and educational status. These are answered by the students when they receive the post card in the fall:

- Name and home address
- Employed full time in a field for which trained
- Employed full time in a related occupation
- Employed full time in unrelated occupation
- Kind of work done
- Wages
- Seeking employment
- Schools attended since graduation
- Military status
- Reasons for not working (if unemployed)

The student then mails the post card back to his school. The data on the cards are ultimately aggregated to complete the follow-up report required by the State Education Department.

3. Evaluation of New York City's reporting procedures. The Board of Education has implemented reporting procedures that are organized exclusively for the purpose of meeting two state reporting requirements: a report of occupational enrollments; and a report of occupational completions. When considered in this context, there is little in the board's procedures which could be characterized as flawed. Picayune

problems notwithstanding, the board is able to submit reports on schedule to the State Education Department that are no less valid than the reports submitted by other education agencies throughout the state.

In the category of problems which are resolvable without substantial alteration of current practice, the most serious is the manner in which the board defines student disadvantagement. Under the Vocational Education Amendments of 1968, disadvantaged students are defined as those ". . . who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program."*

The State Education Department's Division of Occupational Education Planning has helped to operationalize the federal intent by providing the following definition for reporting purposes:

> Disadvantaged students are those who have academic, socio-economic, cultural, or other handicaps that affect their ability to succeed in an occupational education program designed for persons without such handicaps, and who for that reason need special educational assistance or a modified occupational program.

Unlike all other federal legislation concerning the disadvantaged, VEA68 emphasizes the consequence of a given socio-economic condition rather than the condition itself. For

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* SEC. 122(a)(4)(A), VEA68.

example, students A and B may both come from a lower socio-economic stratum. Student A requires special assistance or a modified program. Student B does as well or better than his middle class colleagues without receiving special assistance. Under VEA68 only Student A should be identified as disadvantaged, since only student A requires special assistance. Under the board's current procedures both students A and B would be defined as disadvantaged because the board's definitions emphasize socio-economic factors rather than the actual consequences of these factors upon student performance. Under the board's current procedures, a student is disadvantaged if he is eligible for free lunches, his home is in an obviously poor neighborhood, or if he comes from an intermediate or elementary school which is eligible for funds under ESEA Title I.

To the extent that there are students in New York City like student B, the board is reporting too many students as being disadvantaged.* This problem may be resolved by having teachers or guidance personnel identify students who require and are receiving special assistance or a modified

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* It should be stated that the problem of identifying disadvantaged students under VEA68 is not more acute in New York City than in other locations. Neither VEA68 nor its subsequently published rules and regulations are particularly helpful in defining what is meant by a disadvantaged student. The legal and functional ramifications of identifying the disadvantaged under the Vocational Education Amendments of 1968 were investigated by RRI. An oral report was made to the State Education Department on December 18, 1972.

program in occupational education because of socio-economic, academic, cultural or other (nonphysical) handicaps. These students and no others should be reported as disadvantaged.

Other minor problems with the board's procedures include some duplication of work efforts. For example, since no file (computerized or otherwise) exists in which students are designated as disadvantaged on the enrollment report, the data must be reassembled for the follow-up report. Finally, student frequencies in the follow-up report cannot be readily partitioned by ethnicity (as required by the State Education Department) because there is no ethnic designation on the follow-up post cards, and because the ethnic designations provided by teachers on students' enrollment cards cannot be associated with the student's follow-up returns under the board's procedures.

The major problem with the board's procedures is that a substantial amount of professional labor is consumed relative to what is ultimately produced. The city's procedures cannot easily be augmented to add other reporting or evaluation functions. This problem exists because of the essentially ad hoc nature of the procedures in use. The procedures serve only to meet two specific occupational education reporting requirements. The implementation of RESOE and some minor changes in the present procedures for fulfilling the two occupational education reporting requirements would reduce

the time required to prepare the mandated reports, as well as provide the board with the basic capability to systematically assess program effectiveness in occupational education, to produce cost studies and longitudinal follow-ups, to provide reports for local constituencies (such as parent groups, labor unions, employers, community school boards), and to effectively coordinate a variety of existing administrative processes. The recommended changes and RESOE implementation steps are described in the next section.

C. Recommended Procedures for RESOE Implementation

The procedures which are described below result in the fulfillment of occupational education reporting requirements and the establishment of a basic SEED-maintained student file, the contents of which are similar to the files established for planning regions 1 and 9. The procedures have been worked out by RRI with the support and suggestions of administrators at the Board of Education. The recommended system is illustrated in Figure 6.

1. Enrollment reports. As in planning regions 1 and 9, RESOE implementation begins with the dissemination of materials (instructions and forms) to schools within the city which offer occupational education. There are two essential forms: a course description form which is completed for each occupational course by a school secretary or clerk, and a student

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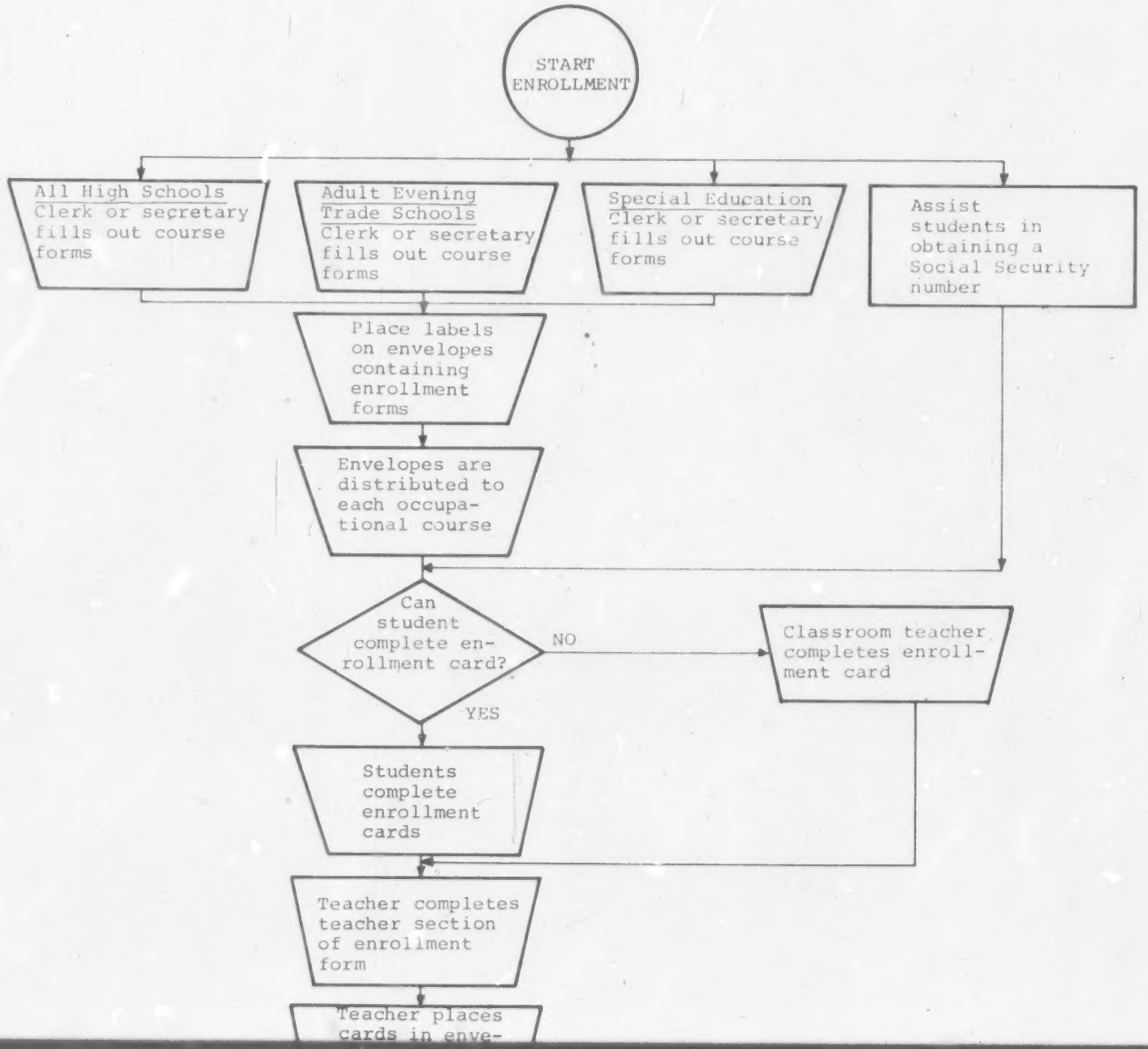

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Fig. 6. Flow diagram of procedures for the implementation of the Reporting and Evaluation System in New York City.

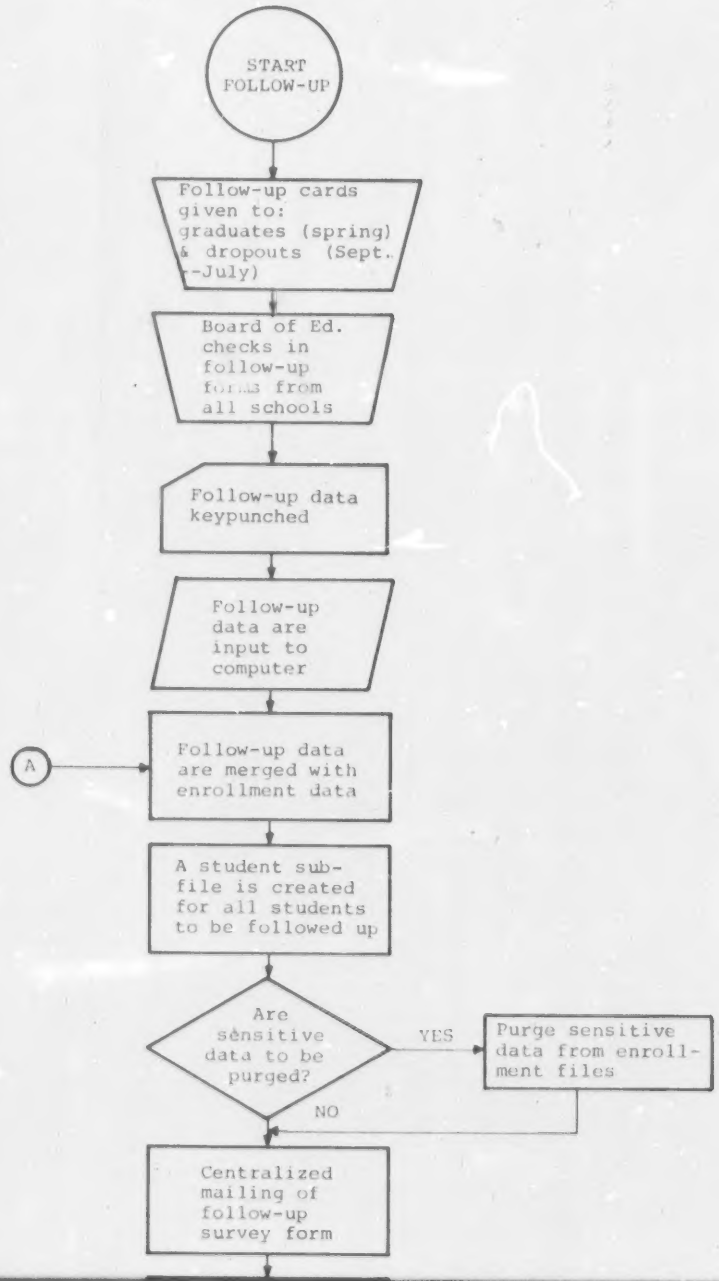
START FOLLOW-UP
Follow-up cards given to: graduates (spring) & dropouts (Sept.-July)
Board of Ed. checks in follow-up forms from all schools
Follow-up data keypunched
Follow-up data are input to computer
A
Follow-up data are merged with enrollment data
A student sub-file is created for all students to be followed up
Are sensitive data to be purged?
YES
Purge sensitive data from enrollment files
NO
Centralized mailing of follow-up survey form

Fig. 6. Continued

enrollment card which is completed by each student for each course he takes.

The secretary indicates the name of the school, local school code, the name of the occupational course, and the room where the course is taught. The secretary also fills in the standard occupational program code for the course. She also indicates whether the class is regular or part of a cooperative work experience program. The name and local address of the person who has been designated to receive the envelope after the students have completed their enrollment cards are also entered on the form.

On a perforated tab attached to the enrollment card, the student writes the name of his school, the date, and his own name. The student then enters his initials, date of birth, sex, grade, cooperative education status, Social Security number, and indicates whether he has completed the form in another course.

The Social Security number is requested in order to obtain a unique numeric identifier for each student that can be used for computer merging operations and for related systems applications.* In the near future, it will not be difficult to obtain Social Security numbers from most

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* The Targeting System for Occupational Education requires Social Security numbers of students completing occupational education courses.

students.* In the meanwhile, a unique numeric identifier can be created from the location code for the student's school, his initials, date of birth, and sex.

After the students complete the forms, the teacher collects the forms and indicates student ethnicity and student type. Ethnicity is indicated by circling a letter (I, N, O, S or A). The teacher also circles a letter (R, D or H) to indicate student type (regular, disadvantaged, handicapped). The following definitions were developed with the board to be used by teachers for defining the disadvantaged and for defining the handicapped. A disadvantaged student is one who requires special assistance or a modified course of study in the subject for which the enrollment card is being completed, because of academic, socio-economic, or cultural handicaps. A handicapped student is one who requires special assistance or a modified course of study in the subject for which the enrollment card is being completed, because of mental

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* Federal legislation has recently been enacted which requires students to have Social Security numbers upon entering school. Moreover, the Social Security Administration has cooperated with school administrators in obtaining Social Security numbers for occupational students. After a presentation in school is made by a representative of the Social Security Administration on "the Social Security System in the world of work," applications are given to students for immediate completion. The applications are then sent en masse to the local Social Security office. The office prepares cards and returns them to the school for distribution to students.

retardation, hearing difficulty, deafness, speech impairment, visual handicap, serious emotional disturbance, crippling, or other health impairment.

After the teacher indicates student ethnicity and student type, the perforated tab containing the student's name is detached, the enrollment cards are replaced in the envelope, and the envelope is returned to the individual designated to receive it. After each occupational course is surveyed, and all envelopes are collected at a particular school, they are sent to the Board of Education.

The forms are then sent to the RESOE central facility where the enrollment data are punched and SEED-maintained student files are created. SEED is then used to generate the enrollment report required by the State Education Department. Individual schools are also sent an enrollment report.

2. The follow-up report. A modified version of the post card system currently used by the board may be used within RESOE. In late April, each graduating student enters his projected fall address in the correct place on a double post card. The student also provides sex, Social Security number, school code and perhaps some other identifying information on the half of the double post card which does not contain his name and address. These cards are also completed by occupational dropouts throughout the year and by certain students in adult courses. In June, the cards are sent to the Board of Education; and then to the central facility.

SEED is then used to create a file of students to be followed up. This is accomplished by entering the identifiers of students to be followed up and adding to it the information on these students available in the previously created student enrollment file. After the follow-up file is created, all sensitive data (e.g., student ethnicity and student type) are purged from the permanent enrollment file. This step is carried out to fulfill a New York City policy of not retaining sensitive data on individual students.

Some small proportion of students who fill out post cards in the spring would not be found in the SEED-maintained enrollment files. This does not adversely affect RESOE's ability to carry out the follow-up study. If requested to do so, the central facility produces listings of student completions with missing enrollment data, so that local school administrators interested and able to provide missing enrollment information can do so.

In the fall, the central facility sends the post cards out. As the follow-up cards are returned, they are merged into the data base. If a second mailing is to be carried out for students who do not respond to the first follow-up questionnaire, the central facility uses its SEED-maintained file to determine which students have not responded and to generate labels for a second mailing.

At the last possible date permitted by SED, the state mandated follow-up report is generated by SEED through the use of the student follow-up file. All students who have not returned their cards would be listed as "status unknown" on the state report. Reports are also generated for each participating school. As in follow-up studies throughout the rest of the state, the central facility would calculate how representative the students who returned follow-up data are as a sample of the entire population of students who are being followed up. All post cards that are returned after the closing date for filing the state report are keypunched, and the data entered into the data base for any subsequent analyses requested by the board or by individual schools. As in the case of the enrollment files, the follow-up files are purged of sensitive data (e.g., student ethnicity and student type) to meet a board policy of not retaining such information.

D. Field Test of Enrollment Procedures

After the procedures described in the previous section were developed by RRI, and accepted by Board of Education staff members, a field test of the RESOE procedures was carried out. The field test was concerned with the enrollment portion of the system.* The RESOE enrollment processes were

* For comparative purposes the field test enrollment procedures included two definitions of disadvantagement. Under the first definition, a student was designated as disadvantaged if he came from a school eligible for ESEA Title I assistance. Under

field tested in one vocational and two academic high schools. The forms and instructions for this field test are contained in Appendix 3 of this report. The data from the field test are still being analyzed.**

Although final conclusions with respect to the success of the enrollment procedures in New York City must await the completion of data analysis, a preliminary review of the data indicates that the enrollment procedures were successful, and that it would therefore be possible to provide New York City with the flexible reporting and evaluation apparatus that RESOE offers.

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the second definition, the student was disadvantaged if he required special assistance or modified instruction because of academic, socio-economic or cultural handicaps. The simultaneous utilization of the two defintions allow for an empirical assessment of the differences and how provided information concerning enrollment and follow-up reports will ultimately be affected by changing definitions. However, when RESOE is implemented in New York City, the second definition will most likely be utilized.

** A supplementary report on the RESOE New York City field test will be given to the State Education Department after all data are analyzed and final conclusions are made.

VI. Utilization of RESOE by Regional and Local Education Agencies

Most of this report is concerned with the initial stage of RESOE implementation, which involves the establishment of the basic SEED-maintained student files, and the utilization of these files to fulfill state reporting requirements. However, the full value of RESOE is realized when the system is used to meet state reporting requirements while simultaneously supporting additional reporting, evaluation, and administrative processes for occupational administrators and guidance personnel.

Although RESOE distributes and reduces the work associated with meeting reporting requirements, the time expended by local personnel to provide the central facility with the data it needs to create files and generate mandated reports is hardly trivial. By using RESOE for additional purposes, the full power of flexible computer-maintained files is realized. The time expended to create those files can be apportioned over a variety of functions, and total personnel time is genuinely conserved.

The utilization of RESOE for additional reporting and evaluation purposes will be initiated at the discretion of local and regional occupational educators. Thus some educators

might wish to use RESOE for analysis of skills mastery, others might wish to use RESOE to produce the data for a regional "state of occupational education" report, others may apply RESOE for the analysis of sophisticated follow-up research, and others might be interested in program costing, or a variety of other administrative processes. On the other hand, some occupational educators may wish to use RESOE only to meet mandated reporting requirements, and to apply alternative approaches for fulfilling other reporting and evaluation functions.

Occupational educators will be able to make an informed choice over such matters only after they have become familiar with the basic concepts underlying New York State's RESOE, and after RESOE has become able to fulfill their requirements and specifications. During the past year, RRI carried out a number of tasks to make RESOE more comprehensible to occupational administrators and more responsive to their requirements. These work efforts are discussed in this section.

A. A Layman's Guide to the Reporting and Evaluation System

During the past year, RRI has developed a guide to RESOE. The purpose of this guide is to acquaint occupational educators with the concepts and capabilities of RESOE, and to provide a set of procedures which allow occupational educators to have access to their SEED-maintained data at the centr

facility. The layman's guide appears as Appendix 1 of this report.*

B. Bulletins Concerning System Additions and Changes

Procedures need to be found to supplement the layman's guide so that occupational educators will be aware of system additions, improvements, and also of any problems of general significance which have emerged in the course of using RESOE for a variety of purposes. Some relatively formal means of communication will be required when RESOE has been implemented in several occupational planning regions. RRI has investigated alternative means of disseminating information to RESOE participants. Two forms of information dissemination seem to be most appropriate. Information of a relatively technical nature can be sent as supplements to the layman's guide. After a number of supplements have been sent, or when any major revisions in central facility procedures or in SEED are implemented, a revised version of the guide should be produced. Nontechnical information of general interest can be sent by the central facility to the regional coordinators in the form of press releases. These releases may be included in existing

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* After the contents of the layman's guide are approved by the State Education Department's Division of Occupational Education Planning, the guide can be produced as a brochure for distribution to occupational educators at sites where RESOE is being implemented.

BOCES and local education agency publications if the regional coordinator finds it appropriate to do so.

C. Revisions in RESOE's Stage I Implementation Procedures: Changes in Coding Procedures

As indicated elsewhere in these pages, the primary objective of the RESOE Stage I implementation process is the establishment of basic student files which may be used to fulfill mandated reporting requirements. A number of minor changes can be effected which will result in a student data base which fulfills the mandated reporting requirements, and is also more capable of serving the needs of local administrators.

An example of a change which should be implemented is in the course coding procedures. In the current procedures, occupational courses are coded with a subset of program codes developed originally by the U. S. Office of Education.* The mandated enrollment and follow-up reports must make use of these codes. However, occupational administrators frequently do not use these codes in their own administrative practices. They have often developed a local coding system which they have found to be more useful for their particular set of course offerings. If the RESOE data base is keyed only by the

* A listing of these codes may be found in Appendix 2 in a booklet entitled Program Classifications for Occupational Education.

federal code system, local administrators have difficulty in compiling their course or student data with respect to course categories that are meaningful to them. Very frequently, a single course may be categorized under several federal codes. In other instances, courses which are quite different in the view of local administrators must both be labeled with the same federal code.*

Therefore, as part of the Stage I implementation procedures, occupational educators should have the opportunity to enter their own local codes in addition to the federal codes or to provide the central facility with a table which "crosswalks" local course and federal program codes. If these codes are then entered into the basic student enrollment and follow-up files, enrollment and follow-up reports can be generated which will have more local significance.

D. A Regional State of Occupational Education Report

During the past year, RRI has initiated discussions with occupational educators concerning their interest in an annual "State of Occupational Education" report which would contain summaries of occupational activities, student performance, etc. that were generated by RESOE. Some occupational

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* An example of this situation occurs in New York City where one federal code must be used to describe two distinct types of stenography courses. One type is for students with adequate English skills, and the other type is for students without adequate English skills.

administrators have expressed interest in this sort of report, while others would prefer to use RESOE for the generation of more frequent (e.g., quarterly) reports. Based upon discussions with occupational personnel, the following information might be included in an annual state of occupational education report or in more frequently generated shorter reports:

- Results of follow-up studies;
- student enrollments;
- reports of student performance;
- reports of utilization of BOCES occupational education services by member school districts;
- reports of placement activity;
- reports of guidance activity;
- execution and reports of surveys of students' occupational interests;
- reports of the manpower requirements of local and regional employers;
- reports of faculty coverage and experience;
- reports of the utilization of services for special student groups such as the handicapped and the disadvantaged.

In addition to this quantitative information, the "State of Occupational Education Report" also needs to contain descriptions of new course offerings, equipment acquisitions,

announcements of any special facilities which have been recently introduced, and reports of special community service projects which are being carried out.

E. Summary Statement

In RRI's view, the interest in the system shown by local and regional education agencies is one of the most important results of the coordinated efforts carried out during the past year by RRI and the State Education Department Office of Occupational Education. This interest will support the sustained development of the system so that it becomes continuously more useful to all users. Therefore, the implementation of RESOE in additional locations must be coupled with appropriate work efforts to ensure that the system serves local requirements. The reporting and analysis request system described in the layman's guide must be tested and revised if necessary. Inexpensive remote data entry procedures for accessing centrally stored information should also be developed and field tested. Finally, a substantive plan must be developed for integrating within RESOE an increased number of currently independent local operating functions so that RESOE continues to conserve time and money.